A REVISION OF THE SUBFAMILY ZELINAE AUCT. (HYMENOPTERA, BRACONIDAE)

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With 900 text-figures

Abstract

The subfamily Zelinae, as defined by Mason (1973) and Van Achterberg (1976b), is revised. The genera *Zele, Homolobus* and *Charmon* are redefined, the genus *Zele* is separated from the Zelinae auct. and is added to the Euphorinae-Meteorini as a senior synonym of *Zemiotes*. The remaining group of genera is renamed Homolobinae, including two tribes, Homolobini tribus nov. and Charmontini tribus nov. In the Homolobinae two new genera from the New World, *Exasticolus* and *Charmontia*, are described. For the first time the genera *Zele, Homolobus* and *Charmon* are fully revised, keyed and illustrated and a subgeneric division of *Homolobus* is proposed. Of the total of 61 valid species, 32 are newly described, while in addition 32 new combinations and 34 synonyms are proposed.

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INTRODUCTION

When, in 1975, I started upon a revision of the Macrocentrinae (except for *Macrocentrus* s.s.), I soon discerned the need for a revision of the Zelinae auctorum because of the mixing of both groups and the lack of modern keys, even of so small and common a genus as *Charmon* Haliday. An unexpectedly large number of changes proved to be necessary to bring the taxonomy up-to-date. A total of 34 new synonyms and 32 new combinations are proposed. Some of the most important changes are the synonymy of *Zele* Curtis with *Zemiotes* Foerster, its removal from the Zelinae auctorum, its inclusion in the Meteorini of the Euphorinae and the renaming of the Zelinae auct. as Homolobinae. The large number of undescribed species in the genus *Homolobus* was unexpected, because they are comparatively large insects. Their nocturnal habits may be one of the main reasons of their rarity in collections, because hymenopterists usually do not collect at light.

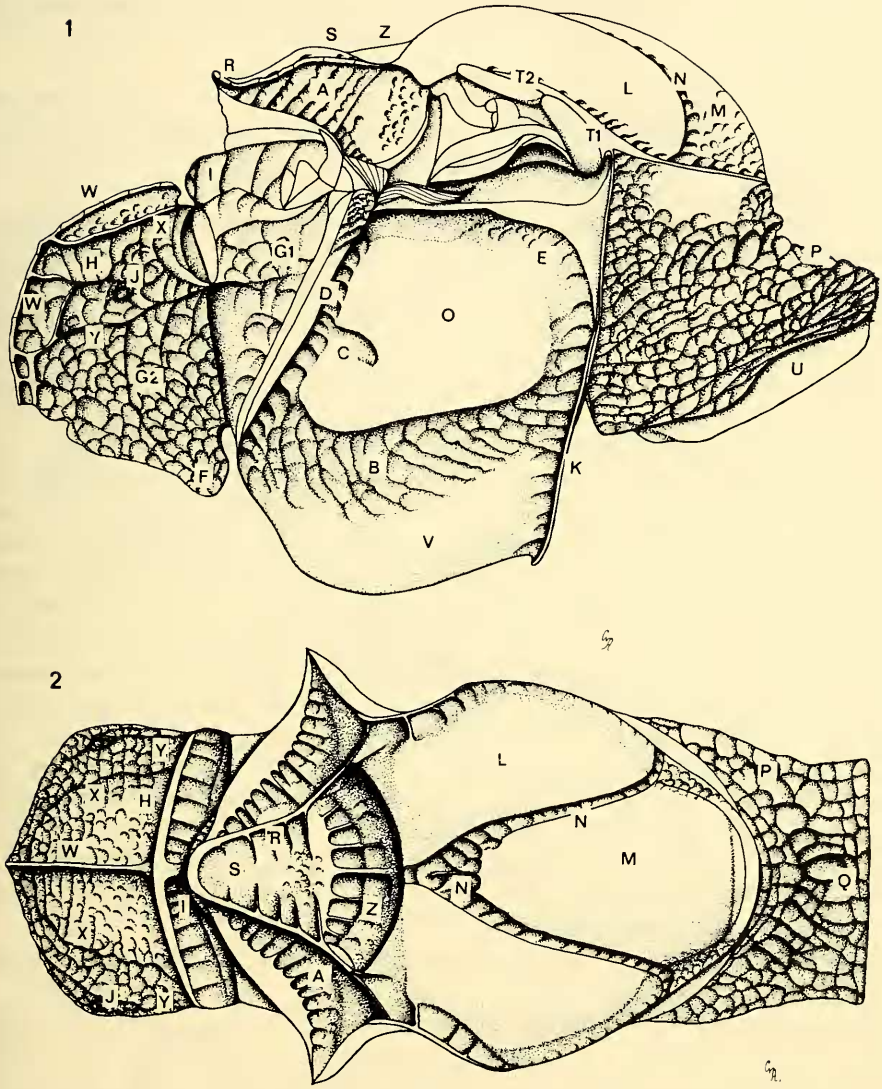
The number of valid species of *Homolobus* is in this paper increased from 18 to 43 species, while I have seen additional new species which have to remain undescribed because of the lack of well prepared specimens. The number of new species in the other genera is lower and the increase in the number of valid species varies from 50—57%, while in the genus *Zele* Curtis a large number of new synonyms are proposed. The total number of valid species in the groups treated in this paper is increased from 29 to 61, or more than doubled.

I have illustrated all species in a comparative way to enhance the chance of an unambiguous identification by workers without access to a reference-collection. Any student has to be aware of possible artificial differences as a result of illustrating from slightly different angles (as with, e.g., the frontal aspect of the head), due to the different ways in which the specimens have been mounted.

Of interest to the biological control of pests is the large number of parasites of pest species of Lepidoptera included in this revision, but more research has to be conducted before a start can be made with their application. Because Shenefelt (1965, 1969, 1970) has given excellent lists of the pertinent literature, I refer only to the original publications, to Shenefelt's catalogue and to the (usually) more recent literature not included by Shenefelt. To facilitate identification per region, keys to species of *Homolobus* per region were inserted after the descriptions.

TERMINOLOGY

The morphological terms used (figs. 1—18) largely follow Richards (1956, 1977) and for the wing venation I have used a modified Comstock-Needham system



Figs. 1—2, mesosoma of *Blacus (Ganychorus) pallipes* Haliday, ♀, Netherlands, Wijster, legs and wings removed. 1, lateral aspect; 2, dorsal aspect. A = side of scutellum and axilla; B = precoxal suture; C = episternal scrobe; D = pleural suture; E = epicnemial area; F = metapleural flange; G1 = anterior part of metapleuron; G2 = posterior part of metapleuron; H = propodeum; I = metanotum; J = propodeal spiracle; K = prepectal carina; L = lateral lobe of mesoscutum; M = middle lobe of mesoscutum; N = notauli; O = mesopleuron; P = pronotum; Q = pronope; R = lateral carina of scutellum; S = scutellum; T1 + T2 = tegula and humeral plate, respectively; U = propleuron; V = mesosternum; W = medial carina of propodeum; X = lateral carina of propodeum; Y = pleural carina; Z = scutellar suture. 75×

based on the proposals of Eady (1974) and Sigwalt (1977). For a comparison with the modified Jurinean system I used before, see table 1. The following modifications of the Comstock-Needham system (as applied to the Braconidae by Eady (1974)) are proposed:

i) the abbreviations of the longitudinal veins are completely written in capitals ("CU" in stead of "Cu"), additional letters to indicate a certain part are in lower case letters (e.g., CU1a). The abbreviations of the true transverse veins are (as in the original Comstock-Needham system) wholly in lower case letters.

ii) the abbreviations are derived from Latin names of the veins. Thus SR (from "sectio radii") and not Rs (from "radial sector") of Eady and others.

iii) the prefix "1-", "2-", "3-", etc. is added to indicate the 1st, 2nd, 3rd, etc. abscissa of a vein. This should not be confused with a cipher without minus-sign in front of an abbreviation, this indicates which vein is involved. E.g., 2r-m is the second transverse vein between the radius and the media, while 2-SR indicates the second abscissa of the longitudinal vein SR. For the application of this system to the genera revised in this paper, see figs. 15—18. Some abbreviations are extra short for practical reasons: r-m of fore wing is actually 2r-m+SR2, except, with certainty, in the Neoneurinae where SR2 branches off distad from 2r-m; an apomorphous state as shown, e.g., by the hypothetical ancestral hymenopterous wing proposed by Ross (1937). Normally 1r-m is absent in the fore wing of the Braconidae, because it disappeared with the anastomosis of SR with M. But in, e.g., the freak-type of fore wing of *Alysia ridibunda* (Say) (fig. 2 in Riegel, 1948) 1r-m is still visible. This vein was wrongly interpreted by Riegel as 2r-m and resulted in his anomalous nomenclature of r-m as 3r-m. The real transverse vein 3r-m is absent in the Braconidae and its sister-group Ichneumonidae. Transverse vein r of fore wing is actually 2r but 1r is normally absent in the fore wing of the Braconidae, while cu-a of hind wing is actually 1-CU+cu-a, but if it is no longer recognizable (as in most subfamilies of Braconidae) it is abbreviated as cu-a.

For the following terms used, an additional explanation may be useful:

Antescutal depression: transverse depression between dorso-anterior part of pronotum and middle lobe of mesoscutum (figs. 168, 316).

Diplope: distinct laterope and dorsope more or less touching each other (fig. 843).

Dorsope: antero-dorsal depression of the 1st metasomal tergite, more or less pit-

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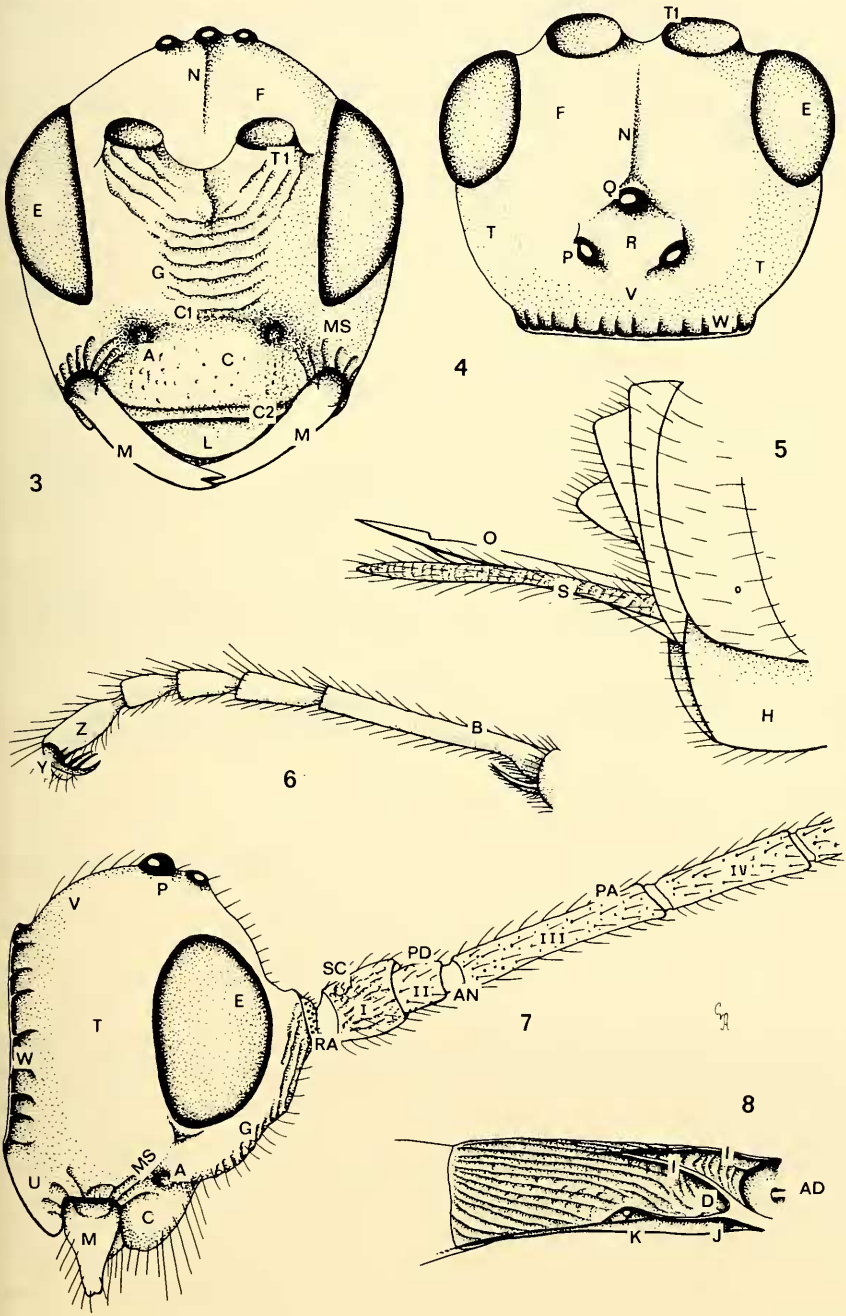
Figs. 3—8, *Blacus (Ganychorus) pallipes* Haliday, same specimen as in fig. 1. 3, frontal aspect of head; 4. dorsal aspect of head; 5, apex of metasoma, lateral aspect; 6, fore tarsus, lateral aspect; 7, lateral aspect of head; 8, 1st metasomal tergite, dorso-lateral aspect. A = anterior tentorial pit; B = basitarsus; C = clypeus; C1 = epistomal suture; C2 = clypeal margin; D = dorsope; E = eye; F = frons; G = face; H = hypopygium; I = dorsal carinae; J = laterope; K = glymma; L = labrum; M = mandible; N = frontal suture; O = ovipositor; P = posterior ocellus; Q = anterior ocellus; R = stemmaticum; S = ovipositor sheath; T = temple; T1 = antennal socket; U = occipital flange; V = vertex, W = occipital carina; X = spiracle of 1st metasomal tergite; Y = tarsal claw; Z = telotarsus; AD = anterior muscle or adductor of 1st metasomal tergite; AN = annellus; MS = malar space; PA = postannellus or 3rd antennal segment; PD = pedicellus or 2nd antennal segment; RA = radix; SC = scapus or 1st antennal segment. 64×

shaped, situated between the more or less developed dorso-lateral carina and the dorsal carina (figs. 8, 852; Van Achterberg. 1974c: 213).



Height: maximum height, unless otherwise stated; for the height of the head, see fig. 10.

Inclivous: transverse vein of which the anterior end is nearer to the wing base than its posterior end.

Laterope: antero-dorsal depression of the 1st metasomal tergite, more or less pit-shaped, situated in the glymma below the more or less developed dorso-lateral carina (figs. 8, 815).

Length of 3rd antennal segment: for convenience' sake the length of the annellus is included.

Length of fore wing: measured from apex of humeral plate to apex of fore wing (Van Achterberg, 1976a: fig. 15).

Length of 1st metasomal tergite: measured from posterior margin of anterior muscle to its apex (fig. 14).

Length of malar space: shortest distance between eye and condylus of mandible (fig. 9, M).

Length of ovipositor sheath: linear length of maximal visible part.

Malar suture: suture (usually shallow) between under edge of eye and base of mandible.

Mesosoma: thorax of most authors, but because of the fusion of the 1st abdominal segment (propodeum or epinotum) with the thorax, I prefer the term "mesosoma". The mesosoma is the part of the body between the 1st and 2nd strong constriction.

Metasoma: following Michener (1944), it is defined as the part of the body after the 2nd strong constriction in the Apocrita. It is usually called the abdomen or gaster; for a discussion on the confusing nature of these terms in the parasitic Hymenoptera, see Van Achterberg (1976a: 166).

OOL: distance between posterior ocellus and eye as measured in fig. 12.

Plical lobe or cell: anal (or vannal) lobe/cell of most authors (Brothers, 1975: 520).

Pronope: a medio-dorsal pit of the pronotum (fig. 2).

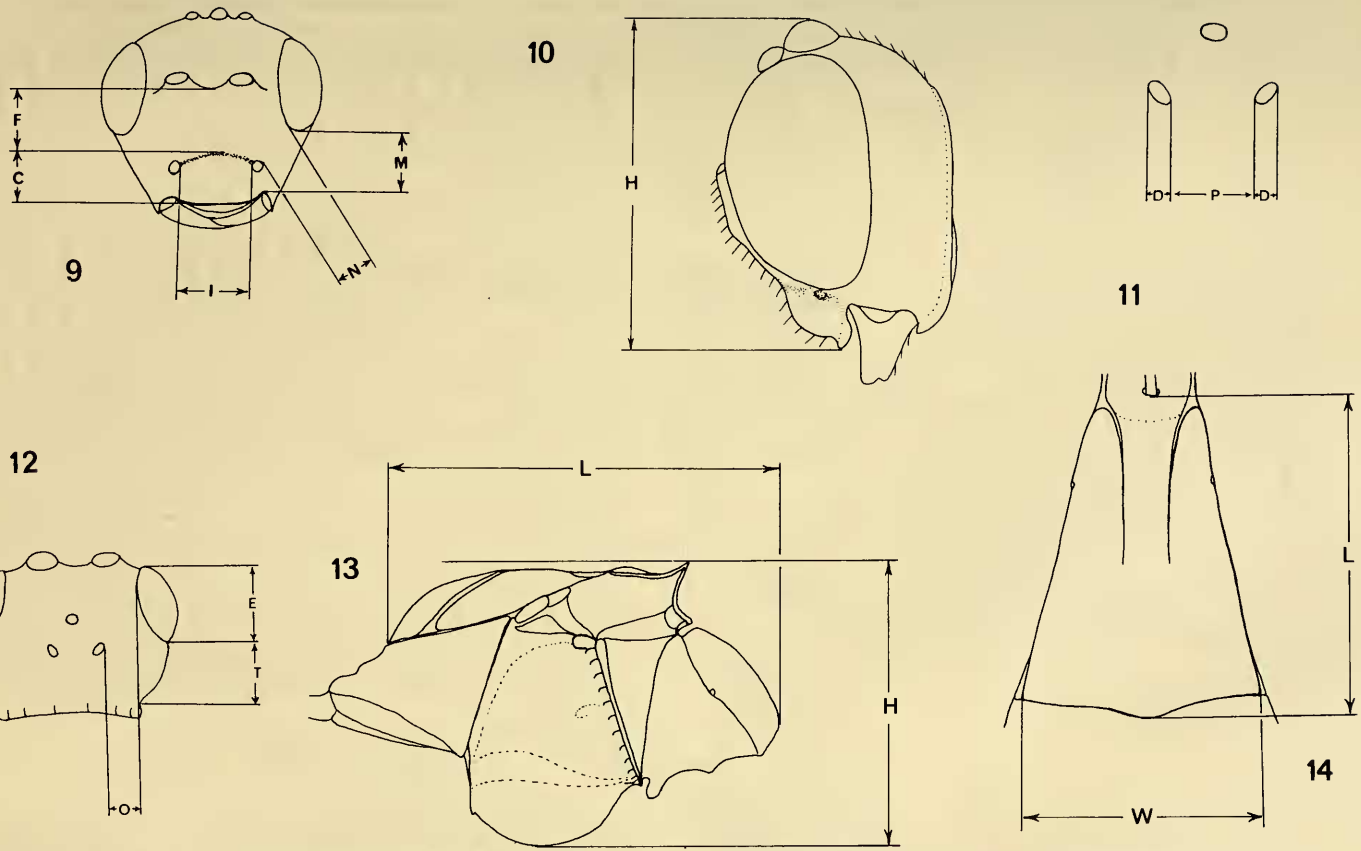
POL: distance between the posterior ocelli (fig. 11).

Reclivous: transverse vein of which the anterior end is further removed from the wing base than its posterior end.

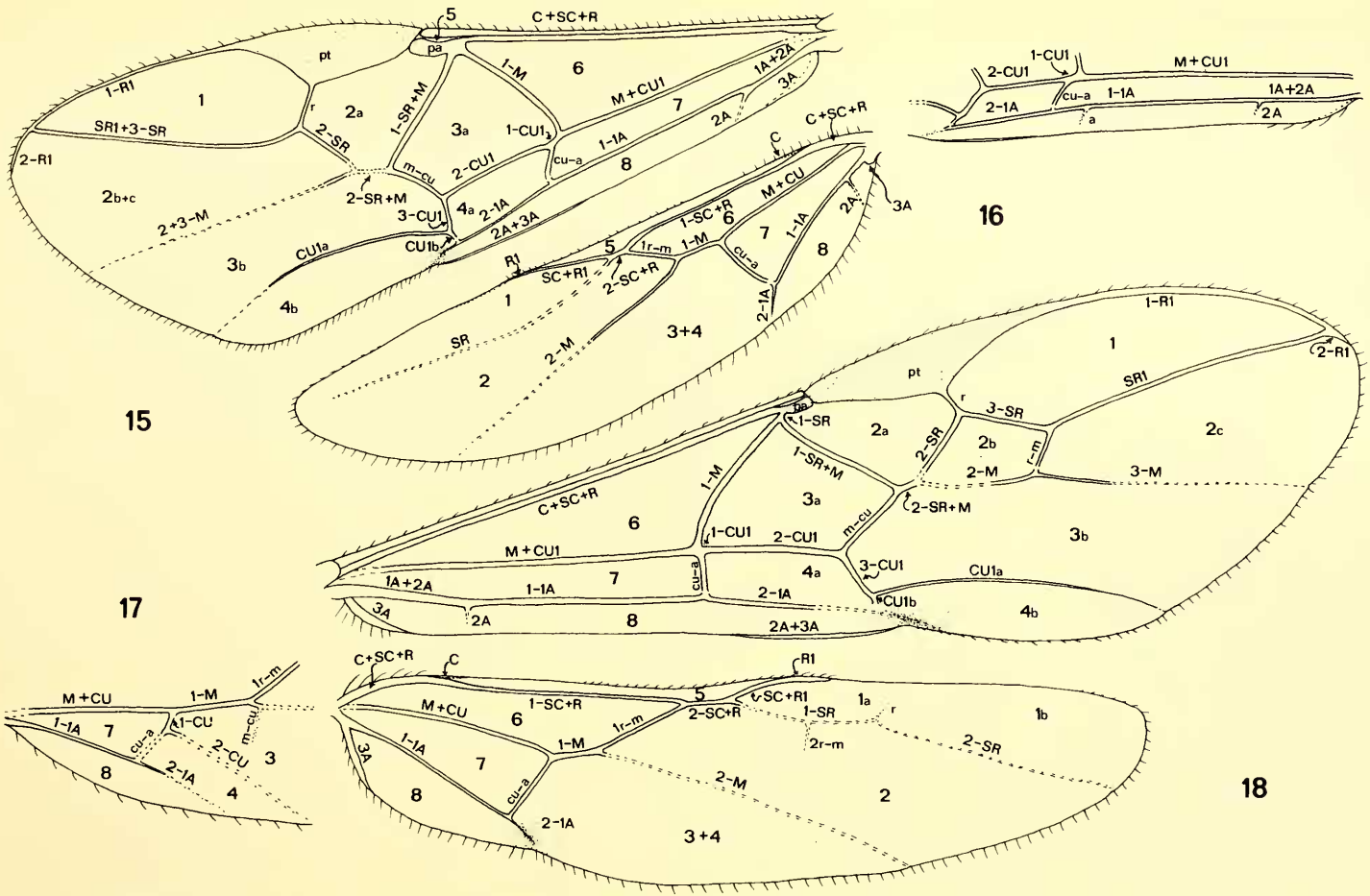
Width: maximum width, unless otherwise stated.

DISTRIBUTION

As shown in the tables 2 and 3, the genus *Homolobus* Foerster (comprising the subgenera *Apatia, Chartolobus, Homolobus, Phylacter*, and *Oulophus*) is cosmopolitan, the genus *Zele* Curtis is widely distributed (but is absent in the Australian and Afrotropical regions, and scarcely represented in the Oriental region), the new genus *Exasticolus* is restricted to the New World, the new genus *Charmontia* is only known from Chile, and the genus *Charmon* Haliday occurs in the Holarctic, Afrotropical, Oriental, and Australian regions. According to Mason (1973: 215) the genus *Zele* Curtis (*Zemiotes* in his paper) is restricted to the Holarctic region, but as reported in this paper, the genus *Zele* is also present in the Neotropical and



Figs. 9—14. 9, head, frontal aspect; 10, head, lateral aspect; 11, stemmaticum; 12, head, dorsal aspect; 13, mesosoma, lateral aspect; 14, 1st metasomal tergite, dorsal aspect. C = height of clypeus; D = diameter of posterior ocellus; F = height of face; H = height; I = inter-tentorial distance; L = length; M = malar space; N = tentorio-ocular distance; O = ocular-ocellar line; P = postocellar line; W = width



Figs. 15—18, nomenclature of the wing venation according to the modified Comstock-Needham system. A = analis; C = costa; CU = cubitus; M = media; R = radius; SC = subcosta; SR = sectio radii; a = transverse anal vein; cu-a = transverse cubito-anal vein; m-cu = transverse medio-cubital vein; r = transverse radial vein; r-m = transverse radio-medial vein; pa = parastigma; pt = pterostigma. Cells: 1 = marginal cell; 2 = submarginal cell; 3 = discal cell; 4 = subdiscal cell; 5 = costal cell; 6 = basal cell; 7 = subbasal cell; 8 = plical cell or (if protruding) lobe; a, b, and c indicate 1st, 2nd and 3rd cell, respectively

Table 1. Comparison of modified Jurinean system and modified Comstock-Needham system (figs. 15—18).

Modified Jurinean System			Modified Comstock-Needham System	
Fore wing	Hind wing	Abbreviations	Fore wing	Hind wing
costa	costella/subcostella	c	C+SC+R	C+SC+R/C/SC+R
media	mediella	m	M+CU1	M+CU/M
submedia	submediella	sm	1A+2A/1A	1A
basalis	basella	b	1-M	1r-m
nervulus	nervellus	nv	cu-a	cu-a
vein for attachment of hamuli	---	-	2A+3A	--
1st transverse anal vein	1st transverse anellan vein	aqu 1	2A	2A
2nd transverse anal vein	---	aqu 2	a	--
1st abscissa of discoideus	---	d 1	1-CU1	--
2nd abscissa of discoideus	---	d 2	2-CU1	--
basal abscissa of subdiscoideus	(sub)discoidella	s 1a	3-CU1	2-CU
apical abscissa of subdiscoideus	---	s 2	CU1a	3-CU
---	---	s 1b	CU1b	--
parastigma	---	p	pa	--
pterostigma	pterostigma (normally absent)	pt	pt	pt
metacarpus	metacarpella	mc	R1	R1
1st abscissa of radius (r1)	transverse radiellan vein	rqu	r	r
2nd abscissa of radius (r2)	radiella	r	3-SR	SR1
3rd abscissa of radius (r3)			SR1	
1st transverse cubital vein	transverse cubitellan vein	cuqu 1	2-SR	2r-m
2nd transverse cubital vein	---	cuqu 2	r-m	--
1st abscissa of cubitus (cu1)	cubitella	cu	1-SR+M	2-M
2nd abscissa of cubitus (cu2)			2-SR+M	
3rd abscissa of cubitus (cu3)			2-M	
4th abscissa of cubitus (cu4)			3-M	
---	postnervellus	pn	--	m-cu
radial cell	radiellan cell	R	marginal cell	marginal cell (1)
1st, 2nd, 3rd cubital cells	cubitellan cell	CU	1st, 2nd, 3rd submarginal cells	submarginal cell (2)
1st, 2nd discoidal cells	discoidellan cell	D	1st, 2nd discal cells	discal cell (3)
1st, 2nd brachial cells	---	B	1st, 2nd subdiscal cells	subdiscal cell (4)
costal cell	costellan cell	C	costal cell	costal cell (5)
medial cell	mediellan cell	M	basal cell	basal cell (6)
submedial cell	submediellan cell	SM	subbasal cell	subbasal cell (7)
anal cell	(v)anellan cell or lobe	A	plical cell	plical cell or lobe (8)

Oriental regions. The genus *Zele* is (as shown by the character-states of the species) of Holarctic origin and its largest speciation has taken place there.

The situation in *Homolobus* is more complicated. There are two subgenera, *Phylacter* Reinhard and *Homolobus* Foerster, which have restricted distributions. *Phylacter* is restricted to the Palaearctic region, with one species in the intermediate area between the Palaearctic and Oriental regions. The subgenus *Homolobus* is restricted to the Palaearctic and Afrotropical regions, and, considering the distribution of the apomorphous character-states among the species, it has also a Palaearctic origin.

The subgenus *Apatia* Enderlein has its centre of speciation in the Afrotropical region, where also the species with the largest number of plesiomorphous character-states occur. The only species outside the Afrotropical region with a peculiar plesiomorphous character-state (viz., the presence of vein r in the hind wing) is *H. (A.) elagabalus* (Nixon) from the Oriental region. Three other species of *Apatia* show a remarkably wide distribution. This distribution may have resulted (partly) from human activities, but this seems unlikely, because, e.g., a species (*H. (A.) australiensis*) may have evolved in Australia from *H. (A.) ophioninus* (Vachal), itself probably originating from Africa. Another curious distribution is shown by a species of the new subgenus *Chartolobus*; *H. (C.) infumator* (Lyle) occurs in the Holarctic region, but has also reached the Neotropical (viz., the Andes) and the Oriental regions. Or, if considered to originate from the Oriental region, it has

Table 2. Number of revised species occurring in only one zoogeographical region.

(Sub)genus / Region	*Exasticolus*	*Apatia*	*Chartolobus*	*Homolobus*	*Phylacter*	*Oulophus*	*Charmon*	*Zele*	*Charmontia*
Palaearctic (Himalayan area included)	-	-	-	3	3	5	-	3	-
Nearctic	-	-	-	-	-	4	-	3	-
Neotropical	2	-	-	-	-	4	-	2	1
Afrotropical	-	9	-	4	-	-	-	-	-
Oriental (Himalayan area excluded)	-	1	-	-	-	1	-	-	-
Australian	-	1	1	-	-	-	1	-	-

dispersed to the Holarctic and Neotropical regions. The origin of *Chartolobus* may be in the Oriental region, but this is uncertain with the information available at present. The new subgenus *Oulophus* is a relatively large group of species, including species with comparatively large number of plesiomorphous character-states, which occur in the South Nearctic and East Palaearctic areas. This may reflect the original Holarctic primary speciation of this group. Unfortunately, there are no fossil remains known of the Homolobinae to test the suggestions put forward in this papier. The new genus *Exasticolus* contains two sparsely collected Neotropical species and one widely distributed and rather common species, which has penetrated the Nearctic as far as Canada from the Neotropical region.

The origin of *Charmon* Haliday is uncertain, but it may originate from the Palaeotropics, from where it occupied the Palaearctic and, subsequently, the Nearctic regions. Some support for this hypothesis lies in the absence of *Charmon* in the Neotropical region and its presence in New Guinea. The new species from New Guinea shows a plesiomorphous condition of the wing venation, if compared with both other species. Interesting is the presence of the closely related new genus *Charmontia* in Chile with a larger number of plesiomorphous character-states than *Charmon*.

PHYLOGENY

In constructing a phylogenetic classification it is necessary to find synapomorphous character-states. The terms apomorphous and plesiomorphous character-states are here used to indicate, respectively, a comparatively high or low degree of divergence from an ancestral state in respect to each other. The first object has to be the defining of monophyletic groups and their sister-groups by synapomorphous character-states. The interpretation of the relative apo- and

Table 3. Number of revised species occurring in more than one zoogeographical region.

Combined region \ (Sub)genus +)	*Exasticolus*	*Apatia*	*Chartolobus*	*Oulophus*	*Charmon*	*Zele*
Holarctic	-	-	-	1	-	2
New World	1	-	-	1	-	-
Holarctic, Neotropical & Oriental	-	1	1	-	-	-
Holarctic & Afrotropical	-	-	-	-	2	-
Afrotropical, Palaearctic & Australian	-	1	-	-	-	-
Indo-Australian	-	-	1	-	-	-
Holarctic & Oriental	-	-	-	-	-	1
Palaearctic, Afrotropical & Oriental	-	1	-	-	-	-

+) The subgenera not mentioned are restricted to one zoogeographical region.

plesiomorphous character-states is based on the general hypotheses of the evolution in the Hymenoptera (as compiled by Königsmann, 1976—1978) and in the Braconidae (Van Achterberg, 1976b).

The synapomorphous character-states of the sister-groups Homolobinae and Orgilinae combined (group E, Van Achterberg, 1976b: 51) are: 1—vein a of fore wing absent; 2—vein m-cu of fore wing far antefurcal; 3—labial sclerite of larvae transverse; 4—epistomal arch and hypostoma of larvae absent; 5—endoparasites of larvae of Lepidoptera; 6—tendency to loose the dorsal carinae of the 1st tergites.

The synapomorphous character-states of the Homolobinae (Homolobini and Charmontini combined) are: 1—antescutal depression present; a character-state found almost exclusively in the Homolobinae as defined in this papier but see note below about the Agathidinae; 2—1st tergite more or less narrowed behind the spiracles, a tendency also present in the Orgilinae (e.g., genus *Microtypus*); 3—1st discal cell of fore wing (sub)sessile and vein 1-SR absent or nearly so, but shortly developed in the genus *Charmontia* (fig. 892); 4—metapleural flange more or less lamelliform and transparent; 5—prepectal carina (almost always) reaches the anterior margin of the mesopleuron.

The apomorphous character-states of the tribe Homolobini, with regard to its sister-group, the tribe Charmontini, are: 1—lateral carina of mesoscutum lamelliform; the plesiomorphous condition in the Ichneumonoidea is probably a weakly developed, non-lamelliform lateral carina; 2—apical segment of antenna with a well developed spine; 3—vein 2A of hind wing absent; 4—mandible twisted apically; 5—vein 2-R1 of fore wing absent.

The apomorphous character-states of the tribe Charmontini, with regard to its sister-tribe, are: 1—vein r-m of fore wing absent; 2—occipital carina reduced medio-dorsally; 3—claws simple, without a subapical tooth; 4—precoxal suture absent; as pointed out by Königsmann (1977: 3) the presence of the precoxal suture has to be considered the plesiomorphous condition in the Hymenoptera; 5—middle lobe of mesoscutum more or less truncate anteriorly and with a transverse protruding horizontal part (fig. 60); this resembles the development in the Macrocentrinae, but differences in other characters (e.g., prepectal carina, trochantelli, pronope) indicate that this is very likely a convergent development; 6—marginal cell of hind wing narrowed distally; as shown, e.g., by the hind wing of the saw-fly *Macroxyela ferruginea* (Say), the plesiomorphous character-state is a medially widened marginal cell; the hind wing of *M. ferruginea* (Say) is one of the most completely venated hind wings known in the Hymenoptera; 7—absence of the lateral carina of the mesoscutum in front of the tegulae; in the Ichneumonoidea a non-lamelliform carina probably is the plesiomorphous condition; 8—apical margin of clypeus with a more or less developed row of punctures.

The apomorphous character-states of the genus *Charmon*, with regard to its sister-group *Charmontia*, are: 1—third segment of labial palp reduced; 2—scutellum smooth medio-posteriorly. Because the great majority of the species of the Homolobinae have this area sculptured, it is likely that the reduction of the sculpture is an apomorphous condition in the Charmontini.

The apomorphous character-states of the genus *Charmontia*, with regard to its sister-group, are: 1—claws (except for the apical tooth) straight ventrally; 2—1st tergite slender (fig. 896); 3—propodeal spiracle situated submedially in propodeum.

The apomorphous character-states of the genus *Exasticolus*, with regard to its sister-group. *Homolobus*, are: 1—inner aspect of apex of hind tibia with a comb of bristles; 2—vein 1-SR+M of fore wing curved distad; 3—tarsi with a weakly developed row of setae ventrally; 4—the selection of Lasiocampidae as hosts, a group of Lepidoptera not attacked by the other Homolobinae according to the available data.

The apomorphous character-states of the large diverse genus *Homolobus*, with regard to its sister-group, are not well to define with the available set of characters. There are some tendencies to apomorphous states (as depicted in fig. 19), which made it possible to divide the genus *Homolobus* in five subgenera. The isolated position of *Exasticolus* as a genus (and not as a subgenus of *Homolobus*) may be caused mainly by the isolation of the parental stock of *Exasticolus* in South America for a long period, combined with the change to another family of hosts.

In sharp contrast the apomorphous character-states of the genus *Zele* Curtis are as follows: 1—1st tergite petiolate; 2—spiracle of 1st tergite situated submedially; 3—mesopleuron more or less protruding antero-dorsally; 4—mandible with a pair of (more or less) protruding, thin carinae; 5—1st subdiscal cell of fore wing narrowly open postero-distally because of the reduction of vein CU1b; 6—mandible of larva without teeth, bare; 7—claws with a large submedial lobe;

8—vein m-cu of fore wing more or less antefurcal; 9—lateral carina of mesoscutum lamelliform; 10—mandible twisted apically; 11—vein a of fore wing absent; 12—metapleural flange more or less lamelliform.

It is clear, after comparing both lists of apomorphous character-states of *Zele* Curtis (= *Zemiotes* Foerster) and of *Homolobus* Foerster, respectively, that *Zele* is not likely to be a sister-group of *Homolobus* (= *Zele* auct.) as proposed by Mason (1973). The first seven apomorphous character-states mentioned for *Zele* Curtis are not shared by *Homolobus*, but are well matched in at least some of the species of the genus *Meteorus* Haliday s.s. I do not hesitate to depart from Mason's view and consider the genus *Zele* Curtis a sister-group of the genus *Meteorus* Haliday, both forming the tribe Meteorini Cresson of the subfamily Euphorinae. The argument put forward by Mason (1973) is based on the faulty premise that he considered "the possibility of *Zemiotes* being ancestral to *Meteorus* or vice versa". What really has to be considered, however, is the possibility that *Meteorus* Haliday s.s. and *Zele* Curtis (*Zemiotes* of Mason) have a common ancestor. The group defined by synapomorphous character-states has to include all descendants of this common ancestor, to avoid defining para- and polyphyletic groups. Of the characters used by Mason to unite *Zele* Curtis and *Homolobus* Foerster probably not one is an apomorphous character-state! My view is supported by the existence of species of *Meteorus* which are very close to *Zele* in all characters used to separate both genera.

Mason (1973: 214) argues that because *Meteorus* and *Zele* have different combinations of character-states they are not closely related. But, in my opinion, the character-states he uses to separate the two genera are plesiomorphous and cannot be used either to separate the genera upon phylogenetic grounds or to justify their inclusion in different subfamilies. The existence of two closely related genera with different sets of plesiomorphous character-states is easy to accept if a different path of further evolution for both genera (as is most likely) is assumed. The existence of intermediate *Meteorus* specimens connects both groups. As pointed out by Huddleston (in litt.) at least males of the European *Meteorus abdominator* (Nees) are intermediate in the degree of setosity of the metasomal tergites. In this species rather wide bands of setae occur in the males, which are almost equal in extent to the bands of setae in smaller species of *Zele*, e.g., *Zele caligatus* (Haliday). Also the marginal cell of the hind wing of *Meteorus abdominator* (Nees) and of a new species from India (DZD) is not distinctly narrowed distad, also showing an intermediate character-state, indicating the relationship of *Zele* and *Meteorus*. The anteriorly situated transverse carina of the propodeum (fig. 824) in *Zele* occurs also in *Meteorus* s.s., but not in the Homolobinae as defined in this paper.

Because of the synapomorphous character-states of the genera *Exasticolus* and *Homolobus* on the one hand (the tribus Homolobini) and the genera *Charmon* and *Charmontia* on the other (the tribus Charmontini) I consider the two tribes to be sister-groups.

The placement of the genus *Charmon* by previous authors varied; Tobias (e.g., 1976: 31) and Čapek (1973: 264) included *Charmon* in the subfamily Mima-

gathidinae (a junior synonym of Orgilinae Ashmead). This was still rejected by Čapek in 1969 (p. 308), who included the genus *Charmon* (as *Eubadizon*) in his Macrocentrinae basing his conclusion on a detailed study of the larval characters. Additionally the emergence opening of the cocoon is regular in shape by removing a cap at one end of the cocoon in the genera *Homolobus* and *Charmon*, while in the Orgilinae s.s. the emergence opening is irregular (Čapek, 1970: 853). Actually Čapek (1970: 850) considered *Macrocentrus, Homolobus* (as *Zele* auct.) and *Charmon* (as *Eubadizon* auct. p.p.) to be closely related. As pointed out above, and earlier (Van Achterberg, 1976b: 37), I agree with Čapek's view about a close relationship between *Homolobus* and *Charmon*, but I have to disagree about a close relationship with the Macrocentrinae s.s. Most of the complex of synapomorphous character-states of the Macrocentrinae s.s. are not shared by the Homolobinae. Thus the sister-group of the Homolobinae is more likely to be formed by the Orgilinae s.s. (together forming group E of Van Achterberg, 1976b: 51, fig. 123). Both have the larval labial sclerite transverse and the epistomal arch and dorsal part of the hypostoma absent, or at least unsclerotized. The genus with most of the plesiomorphous character-states in the Orgilinae is *Microtypus* Ratzeburg. The adults share the following synapomorphous character-states with the Homolobinae: 1—1st tergite somewhat constricted behind the spiracles; 2—reduction of the dorsal carinae of the 1st tergite; 3—reduction of the 3rd labial palp segment; 4—endoparasites of lepidopterous larvae; 5—prepectal carina reaching anterior margin of mesopleuron; 6—apex of antenna with a well developed spine; 7—1st discal cell of fore wing (sub)sessile or nearly so.

The inclusion of the Homolobinae as a tribe in the Helconinae (Watanabe, 1969: 319) is rejected because of differences of larval (Čapek, 1970: 853) and adult morphology (Van Achterberg, 1976b: 853), together with differences in their biology.

Exceptionally a shallow and narrow antescutal depression, combined with a weak constriction of the 1st tergite behind the spiracles is present in the Agathidinae, but this seems to be a parallelism, because the plesiomorphous character-states are also present in the Agathidinae. Additionally, no convincing set of synapomorphous character-states has yet been found, a necessity to validate the sister-group concept for the Agathidinae and Homolobinae, but further research may reveal such a relationship.

The evolution within the tribe Homolobini is fairly complicated. The new genus *Exasticolus* is easy to separate by two (for the subfamily unique or autapomorphous) character-states, viz., the presence of a hind tibial comb and the curved 1-SR + M in the fore wing. It may reflect the early isolation of the group on the South American continent. Additonal apomorphous character-states are the mainly smooth precoxal suture, the small 3rd labial palp segment and the short ovipositor. Its sister-group, the genus *Homolobus* Foerster, consists of several subgroups (subgenera) of which the subgenus *Apatia* Enderlein probably originated first. Remarkable characteristics of *Apatia* are the simple claws and the phenocline towards loosing the sharp apex of the hind tibial spurs of the males (figs. 709—713).

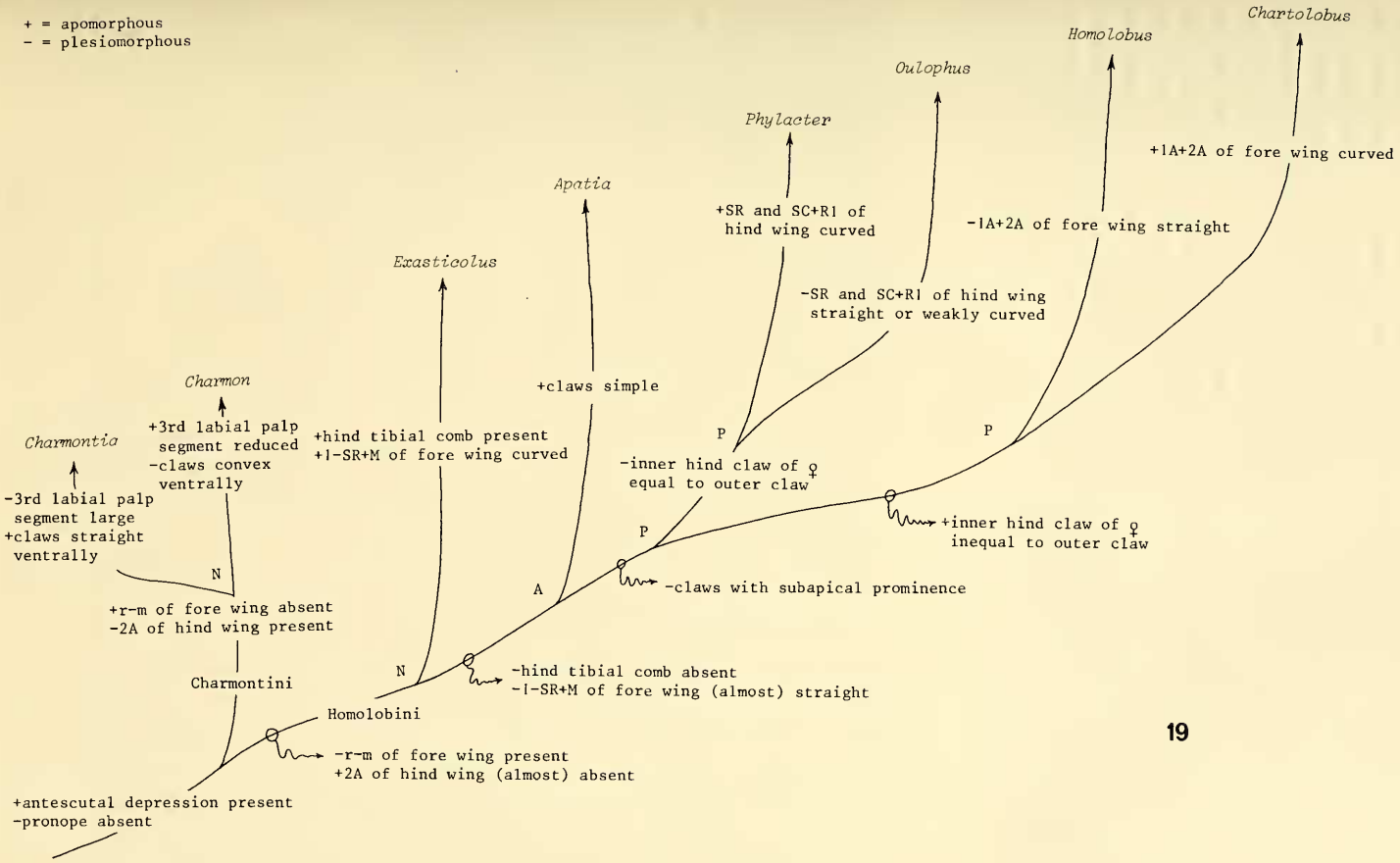


Fig. 19, dendrogram of possible relationships in the Homolobinae. The zoogeographic regions in which the primary speciation may have taken place are indicated by the following abbreviations: A = Afrotropical; N = Neotropical; P = Palaearctic

The following separations seem to have taken place in the Palaearctic region. Firstly the subgenera *Phylacter* Reinhard and *Oulophus* subgen. nov. *Phylacter* is a small group of species, related to *Oulophus* and is characterized by the strongly curved SC + R1 of the hind wing and the more or less curved base of SR of the hind wing. The new subgenus *Oulophus* is a large and rather diverse group of species, the primary speciation of which seems to have taken place in the Holarctic region. Secondly evolved the group of the subgenera *Homolobus* Foerster and *Chartolobus* subgen. nov., which is characterized by a well-developed ridge on the 3rd—9th antennal segments of the female and inequal hind claws of the female. The new subgenus *Chartolobus* is the most peculiar subgenus of *Homolobus*, because of the curved vein 1A + 2A of fore wing, together with a lamelliform ridge at the base of the antenna and peculiar inner hind claws of the female. The supposed relations in the Homolobinae are depicted in fig. 19.

BIOLOGY

All the species treated in this paper are primary endoparasites of Lepidopterous larvae; they pupate outside the host and construct a parchment-like, spindle-shaped cocoon, which is covered by some loose silk. Allen (1977: 111) reported a period of obligate ectoparasitism in *Homolobus infumator* (Lyle) after the host (*Campaea margaritata* (L.)) has spun the cocoon. The ectoparasitic phase of the final instar larvae of *H. infumator* lasted about 24 hours. During this phase the host is almost entirely devoured (only the head capsule remains), thereafter the parasite larva began to spin (slowly) its large white cocoon, taking 24—36 hours to complete this. After 17—20 days under outdoor conditions the adults were bred (Allen, in litt.). The absence of teeth at the mandibles of the final instar larvae of the Euphorinae may indicate the absence of an ectoparasitic phase, because the teeth on the mandibles of the larvae of the Homolobinae are presumably adapted to the short ectoparasitic way of life.

Many species have an ophionoid facies (body largely yellowish, slender; eyes and ocelli large and metasoma of ♀ more or less compressed apically) and are frequently captured at light. As pointed out by Gauld & Huddleston (1976: 35) larvae of many Noctuidae and of some Lasiocampidae exhibit the habit to remain concealed by day and coming out to feed at night. The nocturnal behaviour of the parasites may be an adaptation to the activity-pattern of the hosts. There is a profound difference in the host-selection between the species of the two tribes of the Homolobinae. The tribe Charmontini contains parasites of small Lepidoptera larvae with a hidden way of life, mainly in rolled and/or spun leaves, in stored products or in mines of leaves. The species of the tribe Homolobini are parasites of exposed living larvae of Lepidoptera, which may have a more nocturnal behaviour as do the adult parasites. The differences are reflected in the shape and length of the ovipositor: long and rather slender in the Charmontini, but usually short and rather stout in the Homolobini. Some species of *Homolobus* (e.g., *H.* (*O.*) *armatus* spec. nov.) have a long and slender ovipositor, which may indicate that more hidden larvae are also used as prey. Unfortunately no host records are known for

these species. I consider a long ovipositor (and the associated selection of hidden larvae as hosts) to be a plesiomorphous character-state, while the usually very short ovipositor of most Homolobini is apomorphous.

The known hosts of *Charmon cruentatus* Haliday are sparse and comprise three species of Tortricidae (*Archips rosaceana* Harris, *Grapholitha molesta* (Busck), and *Acleris variana* (Fernald)), while of *C. extensor* (L.) many hosts are known. They belong mainly to the Tortricidae (*Acleris variana* (Fernald), *A. fuscana* (?), *A. minutacinderella* (?), *A. oxycoccana* Packard, *Argyrotaenia pinatubana* Kearfott, *A. tabulana* (?), *Choristoneura murinana* (Hübner), *C. fumiferana* (Clemens), *Epinotia infuscana* (?), *Eucosma radicana* Walsingham, and *Grapholita molesta* (Busck)), Gelechiidae (*Evagora* spec., *Eucordylea atrupictella* Dietz, *Recurvaria apicitripunctella* (Clemens), *R. canusella* Chambers, *R. milleri* Busck, *R. piceaella* Kearfott, and *R. starki* Freeman), Coleophoridae (*Coleophora ulmifoliella* (?)), Oecophoridae (*Hoffmannophila pseudospretella* Stainton), Geometridae (*Operophthera bruceata* Hulst), and Pyralidae (*Dioryctria reniculella* (Grote)). Of the new genus *Charmontia* no host records are known.

Of the new genus *Exasticolus* only one host is known, viz., *Gloveria ballovi* Schaus, belonging to the Lasiocampidae. The hosts of the species of the subgenus *Apatia* of the genus *Homolobus* mainly belong to the Noctuidae and Geometridae. The Palaeotropical *H.* (*A.*) *ophioninus* (Vachal) is known to be a parasite of Noctuidae (*Spodoptera exempta* Walker and *Agrotis segetum* (Denis & Schiff.)). The closely related *H.* (*A.*) *truncatoides* spec. nov. is only known to have its host on sugar beet (*Beta*). The only known host of *H.* (*A.*) *elagabalus* (Nixon) belongs to the Noctuidae, viz. *Selepa celtis* Moore. The only species of this subgenus with many host records is *H.* (*A.*) *truncator* (Say). The hosts belong to the Noctuidae (*Agrotis segetum* (Denis & Schiff.), *A. venerabilis* Walker, *Amathes smithii* (Snellen), *Heliothis armigera* (Hübner), *Plusia gamma* (L.), *Porosagrotis orthogonia* (Morrison), *P. tristicula* (Morrison), *Prodenia ornithogalli* Guenée, *Spodoptera exigua* (Hübner), and *S. frugiperda* Smith), Geometridae (*Alsophia quadripunctata* Esper, *Erannis bajaria* (Denis & Schiff.), *E. sorditana* Hübner, *Fidonia cebraria* Tr., *F. fasciolaria* (Rottemburg), *Hypagyrtis piniata* (Packard), *Lycia zonaria* (Denis & Schiff.), and *Semiothisa bitactata* Walker), Gelechiidae (*Gnorimoschema operculella* Zeller), and Pyralidae (*Margaritia sticticalis* (L.)). An aberrant host spectrum seems to be present in the Afrotropical *H.* (*A.*) *huddlestoni* spec. nov. All four hosts belong to the Lymantriidae (*Arctornis rubricosta* Hering, *Euproctis fasciata* Walker, *E. rubricosta* Fawcett, and *E. sanguiguttata* Hampson).

The only species of the subgenus *Chartolobus* with known hosts is *H.* (*C.*) *infumator* (Lyle). They belong mainly to the Geometridae (*Alcis repandata* (L.), *Nepytia canosaria* (Walker), *Bupalus pinarius* (L.), *Campaea margaritata* (L.), *Ectropis deodarae* (?), *Ematurga atomaria* (L.), *Lambdina fiscellaria* (Guenée), *L. somniaria* (Hulst), and *Lycia zonaria* (Denis & Schiff.); additionally it has been reared from Oecophoridae (*Agonopterix alstroemeriana* (Clerck)), Noctuidae (*Orthosia stabilis* (Denis & Schiff.)), and Pyralidae (*Phycita roborella* (Denis & Schiff.)).

The only species of the subgenus *Homolobus* with host-records is *H.* (*H.*) *discolor*

(Wesmael). Probably it is a parasite of Geometridae (*Alcis repandata* (L.), *Boarmia* spec., *Cabera pusaria* (L.), *Ennomos* spec., *Eupithecia abietaria* (Goeze), *Geometra alniaria* L., *Larentia* spec., *Odontopera bidentata* (Clerck), and *Thera variata* (Denis & Schiff.)) and Noctuidae (*Acronycta aceris* L., *Lithocampa ramosa* Esper, and *Polyphaenis sericata* Esper). The host record of a Tortricid (*Zeiraphera rufimitrana* (Herrich-Schäffer)) is probably incorrect.

The only species of the subgenus *Phylacter* with host records is *H.* (*P.*) *annulicornis* (Nees). It seems to be mainly a parasite of Noctuidae (*Apamea unanimis* (Hübner), *Cosmia trapezina* (L.), *Enargia ypsillon* (Denis & Schiff.), *Eupsilia transversa* (Hufnagel), *Lithophane lamda* (F.), *Mamestra brassicae* (L.), *Mythimna obsoleta* (Hübner), *Naranga aenescens* Moore, *Orthosia populeti* (F.), *O. stabilis* (Denis & Schiff.), *Panolis flammea* (Denis & Schiff.), and *Xestia triangulum* (Hufnagel)). Additionally reared from Pyralidae (*Cnephalocrocis medinalis* Guenée, *Margaritia sticticalis* (L.), *Phycita roborella* (Denis & Schiff.)), Geometridae (*Alcis repandata* (L.), and *Alsophila aceraria* (Denis & Schiff.)), and Tortricidae. The host records of Tortricidae (*Archips rosana* L., and *Tortrix viridana* L.) are probably incorrect, considering the size of the parasite.

The only species of the subgenus *Oulophus* with known host data, viz., *H.* (*O.*) *flagitator* (Curtis), seems to be a specalized parasite of Geometridae (*Alcis repandata* (L.), *Campaea perlata* (Guenée), *Caripeta divisata* Walker, *Entephria caesiata* Lang (on *Vaccinium myrtillus* L.), *Eupithecia annulata* Hulst, *E. harrisonata* MacK., *E. longipalpata* Packard, *E. olivaceae* Taylor, *E. placidata* Packard, *E. unicolor* Hulst, *Larentia citrata* (L.), *Melanolophia* spec., *Nyctobia limitata* (Walker), and *N. nigroangulata* Strecker).

The numerous host data of the genus *Zele* indicate a wide spectrum in some species (*Z. albiditarsus* Curtis and *Z. chlorophthalmus* (Spinola)), while other species (*Z. niveitarsis* (Cresson) and *Z. caligatus* (Haliday)) seem to be restricted to one family of Lepidoptera. *Zele caligatus* (Haliday) is known from only one genus of Geometridae, viz., *Eupithecia* (*E. absinthiata* (Clerck), *E. expallidata* Doubleday, *E. filmata* Pears., *E. goossensiata* Mabille, *E. indigata* (Hübner), *E. luteata* Packard, *E. palpata* Packard, *E. satyrata* (Hübner), and *E. ?usurpata* Pears.). The host record of a Nymphalid (*Euphydryas aurinia* (Rottemburg)) is probably erroneous.

The known hosts of *Zele niveitarsis* (Cresson) belong mainly to the Pyralidae (*Acrobasis betulella* Hulst, *A. comptoniella* Hulst, *A. ostryella* (?), *A. rubrifasciella* Packard, *A. sylviella* (?), *Meroptera pravella* (Grote), *Salebria contatella* Grote, *S. subcaesiella* (Clements), and *S. virgatella* (Clements)). Additional records, which need verification are from Geometridae (*Rheumaptera hastata* (L.)) and Noctuidae (*Lithopane* spec.).

The recorded hosts of *Z. chlorophthalmus* (Spinola) belong to the Pyralidae (*Acrobasis consociella* (Hübner), *A. tumidana* (Denis & Schiff.), *Eurhodope suavella* (Zincken), *Eurrhypara coronata* (Hufnagel), *Margaritia sticticalis* (L.), *Nephopterix adelphella* (Fischer von Röslerstamm), *N. hostilis* (Stephens), *Phlyctaenodes turbidalis* (Tr.), *Phycita roborella* (Denis & Schiff.), *Poinea forficalis* (L.), and *Sylepta ruralis* (Scopoli)), Geometridae (*Angerona prunaria* (L.), *Crocallis elinguaria* (L.), *Ematurga atomaria* (L.), *Odontopera bidentata* (Clerck), and *Rheumaptera cervinalis*

(Scopoli)), Noctuidae (*Jaspidia pygarga* Hufnagel and *Metoponia koekeritziana* (Hübner)), Tortricidae (*Cnephasia communana* (Herrich-Schäffer), *Laspeyresia pomonella* (L.), *Tortrix viridana* (L.)), Lasiocampidae (*Malacosoma neustria* (L.)), Lymantriidae (*Lymantria monacha* (L.)), Arctiidae (*Spilosoma urticae* (Esper)), and Limacodidae (*Apoda avellana* (L.)).

The numerous host data concerning *Z. albiditarsus* Curtis are grouped according to the two colour-forms, to indicate their differences and similarities. The known hosts of *Z. albiditarsus* Curtis f. *deceptor* (Wesmael) belong mainly to the Geometridae (*Anticlea badiata* (Denis & Schiff.), *Catarhoe cuculata* (Hufnagel), *Chesias legatella* (Denis & Schiff.), *Chloroclysta truncata* (Hufnagel), *Colotois pennaria* (L.), *Crocallis elinguaria* (L.), *Deileptenia ribeata* (Clerck), *Enypia moillieti* (?), *Eupithecia indigata* (Hübner), *E. lariciata* (Freyer), *E. pseudotsugata* MacK., *Hydriomena caesiata* (Denis & Schiff.), *H. furcata* (Thunberg), *Ligdia adustata* (Denis & Schiff.), *Nyctobia nigroangulata* Strecker, *Odontopera bidentata* (Clerck), *Rheumaptera* spec., *Semiothisa continuaria* (Walker), *S. granitata* (Guenée), *S. liturata* (Clerck), *S. unipunctaria perplexa* (McDunnough), *S. sexmaculata* (Packard), *Spargania luctuata* (Denis & Schiff.), *Xanthorhoe fluctuata* (L.)). Other families of hosts represented are Noctuidae (*Anarta myrtilli* (L.), *Hoplodrina alsines* (Brahm), *Ipomorpha retusa* (L.), *Lacanobia oleracea* (L.), *Lithacodia pygarga* (Hufnagel), and *Syngrapha interrogationis* (L.)), Pyralidae (*Margaritia sticticalis* (L.) and *Ostrinia nubilalis* (Hübner)), Momphidae (*Mompha contortella* (?)), Tortricidae (*Acleris hastiana* (L.), *A. variana* (Fernald), *Epinotia solandriana* (L.)), and Saturniidae (*Antheraea polyphenus* Cramer).

Of the hosts of the nominate form of *Z. albiditarsus* (Curtis) comparatively more hosts belong to the Noctuidae, but this may be because of the size of the parasite. Large specimens of *Z. albiditarsus* usually belong to the nominate form and Noctuidae are frequently larger than, for instance, Geometridae. The main part of the known hosts belong to the Geometridae (*Abraxas grossilariata* (L.), *Cidaria pomonaria* (Hübner), *Eupithecia expallidata* Doubleday, *Macaria notata* (L.), *Operophthora brumata* (L.), *Rheumaptera hastata* (L.), and *Thera obeliscata* (Hübner)), and Noctuidae (*Anarta myrtilli* (L.), *Blepharita adusta* (Esper), *Dichonia aeruginea* Hübner, *Dryobotodes eremita* (F.), *Hypena proboscidalis* (L.), *Lacanobia oleracea* (L.), *L. suasa* (Denis & Schiff.), *Mamestria brassicae* (L.), *Orthosia cruda* (Denis & Schiff.), *O. gracilis* (Denis & Schiff.), *O. miniosa* (Denis & Schiff.), *O. stabilis* (Denis & Schiff.), *Panolis flammea* (Denis & Schiff.), *Polia nebulosa* (Hufnagel), and *Zale* spec.). Host records which need to be confirmed belong to the Douglasiidae (*Douglasia ocnerostomella* (Stainton)), Yponomeutidae (*Argyresthia brockeella* (Hübner)), Lyonetiidae (*Leucoptera scitella* (Zeller)), Arctiidae (*Rhyparia purpurata* (L.)), Gelechiidae (*Aristotelia brizella* (Treitschke), and *Caryocolum tricolorella* (Haworth)), Conchylidae (*Aethes francillana* (F.), and *Falseuncaria ruficiliana* (Haworth)), Pterophoridae (*Adaina microdactyla* (Hübner)), Nymphalidae (*Euphydryas aurinia* (Rottemburg)), and Tortricidae (*Semasia aemula* Schläg and *Zeiraphera griseana* (Hübner)).

KEY TO THE GENERA AND SUBGENERA OF HOMOLOBINAE AND METEORINI

1. First tergite petiolate and spiracles situated submedially (figs. 762, 775, 801); antescutal depression absent; pronope more or less developed (fig. 874); (tribus Meteorini) 9
— First tergite sessile and spiracles situated subbasally (figs. 551, 729, 747); antescutal depression present (figs. 31, 119, 168, 316); pronope completely absent; (subfamily Homolobinae) 2
2. Marginal cell of hind wing widened apicad (figs. 147, 161); vein r-m of fore wing present (fig. 180); occipital carina present medio-dorsally (fig. 95); vein 2A of hind wing absent (fig. 85) or nearly so (fig. 107); lateral carina of mesoscutum present; (tribus Homolobini) 3
— Marginal cell of hind wing narrowed apicad (fig. 37); vein r-m of fore wing absent (fig. 892); occipital carina reduced medio-dorsally (fig. 44); vein 2A of hind wing present (figs. 63, 892); lateral carina of mesoscutum absent; (tribus Charmontini) 8
3. Inner aspect of hind tibia without a comb apically (fig. 256); vein 1-SR + M of fore wing straight (fig. 258); tarsi without a ventral row of setae (*Homolobus* Foerster s.l.) 4
— Inner aspect of hind tibia with a well developed comb apically (figs. 98, 882); vein 1-SR + M of fore wing curved distad (figs. 85, 94); tarsi with a weakly developed row of setae ventrally . . . . . *Exasticolus* gen. nov. (p. 271)
4. At least fore tarsal claws with a minute subapical tooth or lamella (figs. 350, 394, 443); hind tibial spurs of ♂ with a sharp, hyaline apex (figs. 710, 713) . 5
— Tarsal claws simple or nearly so, without a tooth or lamella (figs. 123, 152, 212); hind tibial spurs of ♂ sometimes without a sharp apex, spurs truncate and pigmented apically (figs. 112, 712) . . . . . *Apatia* Enderlein (p. 277)
5. Submedially inner hind claw of ♀ distinctly concave ventrally (figs. 351, 439, 887, 888), its shape different from the outer claw (figs. 350, 443); antennal ridge of 3rd—6th antennal segments of ♀ strongly developed (figs. 349, 366, 424, 877, 878) 6
— Submedially inner hind claw of ♀ straight or convex ventrally (figs. 502, 679, 881), its shape similar to the outer claw (figs. 498, 678) or nearly so (figs. 570, 571); antennal ridge of 3rd—6th antennal segments of ♀ usually absent (figs. 879, 880), if present, then weakly developed 7
6. Vein 1A + 2A of fore wing curved (figs. 343, 369, 380); basal third of vein SR of hind wing curved and equally sclerotized as vein 1r-m of hind wing (figs. 349, 367, 382) . . . . . *Chartolobus* subgen. nov. (p. 304)
— Vein 1A + 2A of fore wing straight (figs. 396, 419, 449); basal third of vein SR of hind wing straight or weakly curved (figs. 396, 404, 425), much less sclerotized than 1r-m (fig. 399) . . . . . *Homolobus* Foerster (p. 311)
7. Basal third of vein SR of hind wing distinctly curved and sclerotized as vein 1r-m (figs. 495, 507), if intermediate (fig. 482), then claws bifurcate (fig. 488); vein SC + R1 of hind wing (rather) strongly curved (figs. 482, 495, 507) . . . . . *Phylacter* Reinhard (p. 321)
— Basal third of vein SR of hind wing straight (fig. 539) or rather curved (fig. 649)

and usually less sclerotized than 1r-m (fig. 655), if exceptionally well sclerotized (figs. 618, 641), then SR of hind wing (almost) straight (fig. 641) and claws with a small subapical tooth (fig. 643) or with a lamella (fig. 629); vein SC+R1 of hind wing straight (fig. 631) or moderately curved (fig. 607) . . . . . *Oulophus* subgen. nov. (p. 327)

8. Length of 3rd segment of labial palp equal to length of 2nd segment (fig. 893); 1st discal cell of fore wing petiolate (fig. 892); claws (except for the apical tooth) straight ventrally (fig. 894); apical segment of antenna without spine apically (fig. 897); scutellum weakly sculptured postero-medially (fig. 899); 1st tergite slender, its length ca. 2.8 times its apical width (fig. 896) . . . . . *Charmontia* gen. nov. (p. 262)

— Third segment of labial palp absent or short, much shorter than 2nd segment of labial palp (fig. 57); 1st discal cell of fore wing (sub)sessile (figs. 37, 63); claws convex ventrally (figs. 40, 52); apical segment of antenna with spine apically (fig. 53); scutellum smooth postero-medially (fig. 43); 1st tergite comparatively stout, its length less than twice its apical width (figs. 31, 41, 70) . . . . . *Charmon* Haliday (p. 263)

9. Marginal cell of hind wing widened apicad (figs. 784, 788); at least apical half of 3rd and following tergites densely setose (figs. 783, 794); vein r of hind wing present (fig. 788) or absent (fig. 758); dorsope more or less developed (figs. 762, 794) . . . . . *Zele* Curtis (p. 359)

— Marginal cell of hind wing narrowed apicad or its sides are parallel; 3rd and following tergites with a few rows of setae, exceptionally more extensively setose; vein r of hind wing absent; dorsope variable . . . . *Meteorus* Haliday

Subfamily HOMOLOBINAE, nom. nov.

Syn.: Zelinae auct. p.p.

Diagnosis. — Antescutal depression present; hypoclypeal depression absent; 1st discal cell of fore wing (sub)sessile, 1-SR absent or nearly so, but in the new genus *Charmontia* present (fig. 892); dorsope of 1st tergite absent; 1st tergite sessile, more or less narrowed behind the spiracles, and spiracles situated in front of the middle of the tergite; apical segment of antenna with a well developed spine, but absent in the new genus *Charmontia* (fig. 897); occipital carina connected with the hypostomal carina above the mandibular base; vein a of fore wing absent; pronope absent; metapleural flange more or less lamelliform and transparent; prepectal carina (almost always) reaching anterior margin of mesopleuron; hypostomal and prepectal carinae present; lateral carina of scutellum absent; vein m-cu of fore wing far antefurcal to 2-SR; subbasal cell of hind wing large (figs. 26, 161); lobes of mesoscutum evenly convex; trochantelli simple, without teeth; scapus (sub)truncate apically; veins CU1b, 2-SR, and 2A of fore wing present; 1st subdiscal cell of fore wing closed distally; plical lobe of hind wing rather large; laterope of 1st tergite deep, large and subbasal; mesopleuron not distinctly protruding anteriorly; maxillary and labial palpi with, respectively, 6 and 4 segments, but 3rd labial palp segment often reduced, in the genus *Charmon* even

absent or nearly so (fig. 57); metasoma evenly setose; occipital carina present, at least laterally; postpectal carina absent; hypopygium truncate apically, large to medium-sized; antennal segments 37—55; ovipositor straight, or nearly so, and with a small subapical notch.

Distribution. — Cosmopolitan. Contains two tribes: Charmontini and Homolobini.

Tribus CHARMONTINI nov.

Diagnosis. — Occipital carina reduced medio-dorsally; tarsal claws without a subapical tooth; anterior tentorial pits deep, medium-sized or large; precoxal suture absent; middle lobe of mesoscutum more or less truncate anteriorly and with a transverse protruding horizontal part (figs. 20, 60); vein 2A of hind wing present; marginal cell of hind wing narrowed apicad; mandibles normal, not twisted apically; vein 2-R1 of fore wing well developed (figs. 15, 892); hind tibial spurs subequal, rather short, 0.2—0.4 times length of hind basitarsus; vein r-m of fore wing absent (fig. 15); ventral margin of clypeus rather thick, not separated from clypeus, and with a more or less developed row of punctures (fig. 898); eyes bare and immarginate, medium-sized; frons and vertex smooth; face rather flat; metapleural flange present as a narrow, rather thin and rounded ventral carina (fig. 32); mesopleuron smooth or nearly so; 1st tergite concave medio-basally and convex submedially; side of scutellum rugose (fig. 43); lateral carina of mesoscutum absent; propodeum without a medial carina and areola, its posterior part not separated from its antero-dorsal part; antepropodeal depression narrow; fringe of wings short; vein 1A+2A of fore wing straight; vein 3-SR+SR1 of fore wing curved basally; 2nd tergite without a sharp lateral crease.

Distribution. — Cosmopolitan. Contains two genera: *Charmontia* gen. nov. from the Neotropical region, and *Charmon* Haliday from the other regions.

Genus **Charmontia** nov.

Etymology: fantasy name based on the genus name *Charmon*, to which it is closely related. Gender: feminine.

Type-species: *Charmontia inopina* spec. nov.

Diagnosis. — Length of body and of fore wing ca. 4 mm; apical segment of antenna without spine apically (fig. 897); length of 3rd segment of labial palp equal to length of 2nd segment (fig. 893); 1st discal cell of fore wing shortly petiolate (fig. 892); tarsal claws (except for the apical tooth) straight ventrally (fig. 894); anterior tentorial pits deep and large (fig. 898); scutellum weakly sculptured posteromedially (fig. 899); epicnemial area smooth, except for some rugae (fig. 890); episternal scrobe well-impressed and elliptical (fig. 890); pleural suture moderately crenulate and deep; length of 1st tergite ca. 2.8 times its apical width; length of hind femur ca. 7.4 times its apical width; ovipositor sheath much longer than fore wing; scutellum punctulate; propodeal spiracle round, small and situated submedially in propodeum; parastigma rather large (fig. 892); vein cu-a of hind

wing almost straight and medium-sized (fig. 892); hind coxa punctulate, but antero-dorsally rugulose and postero-dorsally striate (fig. 895).

Biology. — Unknown, but the long ovipositor suggests the same hosts as of the genus *Charmon*.

Charmontia inopina spec. nov.
(figs. 889—900)

Holotype, ♀, length of body 4.4, and of fore wing 4.2 mm.

Head. — Antennal segments 41, length of 3rd segment equal to 4th segment, length of 3rd and 4th segments both 7.3 times their width, both penultimate segments each 2.5 times their width; length of maxillary palp 1.2 times height of head; dorsal length of eye 1.9 times temples; temples directly narrowed apically (fig. 900); POL : ∅ ocellus : OOL = 8 : 3 : 8; frons convex, but behind antennal sockets flat and medially with a shallow suture; face punctulate, only finely striate medio-dorsally (fig. 898); clypeus rather convex, protruding apically (fig. 890), punctulate, and its margin straight medially; length of malar space 1.3 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.6 times its height; pronotal sides smooth, but medially crenulate and anteriorly with some rugae (fig. 890); anterior half of notauli (except posteriorly) distinctly impressed and crenulate (fig. 899); mesoscutal lobes smooth and distinctly convex; metanotum striate medially; surface of propodeum smooth, only medially reticulate-rugose.

Wings. — Fore wing: r : 3-SR+SR1 : 2-SR = 6 : 44 : 9; 1-SR+M straight; cu-a inclivous and longer than 1-CU1; 1-CU1 : 2-CU1 = 5 : 29. Hind wing: SC+R1 weakly curved; 1-M : cu-a = 1.1 : 1 (fig. 892).

Legs. — Length of femur, tibia and basitarsus of hind leg 7.4, 13.6, and 11.7 times their width, respectively; length of spurs of hind tibia 0.2 times hind basitarsus, subequal (fig. 895).

Metasoma. — Length of 1st tergite 2.8 times its apical width, its surface smooth, but medially somewhat rugulose; dorsal carinae of 1st tergite weakly developed in basal fifth and spiracles protruding (fig. 896); 2nd tergite smooth; length of ovipositor sheath 1.88 times fore wing.

Colour. — Blackish-brown; pterostigma, 2nd and 3rd tergites, and hind coxa, dark brown; rest of legs, palpi, tegulae, scapus basally, annellus and metasoma ventro-basally, more or less brownish-yellow; tibiae and coxae somewhat infuscated.

Holotype in CNC, Ottawa, ♀: "Pichinahuel, Cord. Nahuelbuta, Arauco, Chile, 10—20.1.1959, L. Peña", "New genus near *Charmon*, Det. W.R.M. Mason 76".

Genus **Charmon** Haliday

Haliday, 1833, Ent. Mag. 1: 262.
Čapek, 1969, Proc. ent. Soc. Wash. 71: 308 (as *Eubadizon*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 228, 230.

Čapek, 1970, Can. Ent. 102 : 850, 853, 868, 870, fig. 15.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 231.
Čapek, 1972, Ent. Problémy 10: 133, 136.
Čapek, 1973, Acta Inst. forest. zvol.: 264.
Van Achterberg, 1974b, Norsk ent. Tidsskr. 21: 110.
Mason, 1974, Proc. ent. Soc. Wash. 76: 237, 238.
Gauld & Huddleston, 1976, Entomologist's Gaz. 27: 43, 47, fig. 18.
Van Achterberg, 1976a, Tijdschr. Ent. 118: 250.
Van Achterberg, 1976b, id. 119: 37, fig. 100.
Tobias, 1976, Opr. Fauna SSSR 110: 136.

Type-species: *Charmon cruentatus* Haliday.

Synonyms: *Provancheria* Ashmead, 1900; *Cyclocormus* Cameron, 1911; *Eubadizon* auct. p.p.

Diagnosis. — Length of body 2.9—5.2, and of fore wing 3.3—5.9 mm; apical segment of antenna with an apical spine (fig. 53); 3rd segment of labial palp absent or shortly developed, much shorter than 2nd segment of labial palp (fig. 57); 1st discal cell of fore wing (sub)sessile (figs. 37, 63); tarsal claws convex ventrally (figs. 40, 52); anterior tentorial pits deep and medium-sized (fig. 27); scutellum smooth postero-medially; epicnemial area smooth; episternal scrobe narrow and linear; pleural suture indistinctly and finely crenulate, narrow and shallow (fig. 20); length of 1st tergite 1.3—1.7 times its apical width; length of hind femur 5.3—6.8 times its width; length of ovipositor sheath 0.60—1.55 times fore wing; scutellum smooth; propodeal spiracle round, small, and situated in front of middle of propodeum; parastigma large (fig. 63); vein cu-a of hind wing long and straight; hind coxa smooth or nearly so.

Biology. — Parasites of larvae of Lepidoptera with a hidden way of life.

Key to the species of the genus *Charmon*

1. Vein cu-a of fore wing much shorter than 1-CU1 (fig. 37), resulting in a rather transverse 1st subdiscal cell; basal half of vein M + CU1 of fore wing scarcely sclerotized; length of ovipositor sheath ca. 0.7 times fore wing; pterostigma dark brown medially; Australian region . . . *brevinervis* spec. nov. (p. 267)
— Vein cu-a of fore wing longer than 1-CU1, exceptionally subequal (figs. 26, 49, 75); M + CU1 largely sclerotized; 1st subdiscal cell less transverse (fig. 63); length of ovipositor sheath usually 0.82—1.55 times fore wing, if exceptionally shorter, then pterostigma yellowish medially; Holarctic, Afrotropical, and N. Oriental regions 2
2. Length of ovipositor sheath 0.60—0.74 (forma *brevicaudus* (Hellén)) or 0.82—1.20 (nominate form) times fore wing, exceptionally longer; pterostigma, apex of hind tibia, and hind tarsus yellowish, if intermediate, then middle of hind tibia and tarsus similarly coloured . . . . . *cruentatus* Haliday (p. 268)
— Length of ovipositor sheath 1.21—1.55 times fore wing, exceptionally shorter; pterostigma, apex of hind tibia, and/of hind tarsus infuscated, if intermediate, then middle of hind tibia lighter coloured than apices of hind tarsal segments . . . . . *extensor* (Linnaeus) (p. 265)

Charmon extensor (Linnaeus)
(fig. 20—31)

Linnaeus, 1758, Syst. nat., Ed. 10: 564 (as *Ichneumon*).
Provancher, 1880, Naturaliste can. 12: 171 (*Eubadizon gracilis*). **Syn. nov.**
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 234, 237, 238.
Čapek, 1970, Can. Ent. 102: 853, fig. 15.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 231.
Capek, 1972, Ent. Problémy 10: 133, 136 (re-identification needed).
Mason, 1974, Proc. ent. Soc. Wash. 76: 237, 238.
Tobias, 1976, Opr. Fauna SSSR 110: 136 (re-identification needed).
Fitton, 1978, Biol. J. Linn. Soc. 10: 377.

Note. Because of the presence of two species in the Palaearctic region the existing literature (especially of Western European origin) deals, at least partly, with *Charmon cruentatus* Haliday.

Redescribed after a ♀ from Canada, Mobert; this ♀ was compared with the holotype of *C. gracilis* (Provancher) by Dr. W. R. M. Mason (Ottawa).

Head. — Antennal segments 44, its 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 5.7 and 5.0 times their width, respectively, both penultimate segments 1.7 and 1.8 times their width (fig. 25); length of maxillary palp 1.2 times height of head; dorsal length of eye 2.3 times temples; temples directly narrowed apicad (fig. 28); POL : ∅ ocellus : OOL = 5 : 5 : 7; frons flat; face almost smooth, but with some aciculation near the antennal sockets (fig. 27); clypeus rather convex, indistinctly punctulate, its margin straight medially; length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.5 times its height; pronotal side smooth, except for some indistinctly developed sculpture medially and posteriorly; notauli absent; mesoscutum smooth, except for some punctures (fig. 30); metanotum medially without well-developed carinae; surface of propodeum smooth, except for some microsculpture medio-basally (fig. 31).

Wings. — Fore wing: r : SR1 + 3-SR : 2-SR = 11 : 81 : 21; 1-SR + M sinuate; cu-a inclivous and longer than 1-CU1; 1-CU1 : 2-CU1 = 1 : 10. Hind wing: SC + R1 weakly curved; 1-M : cu-a = 0.8 : 1 (fig. 26).

Legs. — Femur, tibia and basitarsus of hind leg 5,9, 11.4, and 11.7 times their width, respectively; length of spurs of hind tibia 0.4 times the basitarsus, subequal (fig. 29).

Metasoma. — Length of 1st tergite 1.5 times its apical width, its surface finely longitudinally striate; dorsal carinae of 1st tergite absent and its spiracles indistinctly protruding (fig. 31); 2nd tergite smooth, but baso-laterally somewhat aciculate; length of ovipositor sheath 1.46 times fore wing.

Colour. — Dark reddish-brown; pedicellus, annellus, patch between eyes and ocelli, mandibles, prothorax, tegulae, metapleuron partly, metasoma ventrally and legs, yellowish, but hind tibia (except base), middle and hind tarsi, infuscated; 2nd and 3rd tergites more reddish; pterostigma rather dark brown.

Redescribed after ♀ from CNC: "Ex *Dioryctria reniculella*, Mobert, Ont.", "*Eubadizon gracile* Prov., CWT, Det. W. R. M. Mason, (19)60".

Specimens additionally examined: 215 ♀ and 97 ♂. From the Nearctic region: North West Territories (Yellowknife), Newfoundland (Blackhead), Nova Scotia (St. Peters; Grand River; Halifax), New Brunswick (Kedgwick; Summit Depot; Charlo; Green River (Lab.); Golden Ridge, Carlton Co.; Tobique; Upsalquitch), Quebec (Montigny; Park Reserve, Kam. Co., 950 ft; Harrington Lake, Gatineau Park; Lac Crescence; Duchesnay; Lac Mondor; Cascapedia River, Cape Rouge; Berthierville; New Richmond), Ontario (Rush Biv., 15 mi. SE Kenora; Cedar Lake; Chaplean; Bothwell; Arden; Hawk Lake; Wawa; White Falls; Thamesville; Vivian; Rossport; nr. Lake Erie; Richmond; Simcoe; Mobert; St. Davids, Normondale; Prescott; Ottawa, Holtyre; Stittsville; Chatterton; Dryden; Porcupine; Siouxhook; Vermilion Bay; Belleville; Twin Elm; One Sided Lake; South March), Alberta (Edmonton; Coleman; Eisenhower Jet, 4700 ft, Banff; Orion; Granada, Jasper), Saskatchewan (Saskatoon; Great Sand Hills, W. of Swift Current), British Columbia (Vancouver; Cowichan Lake; Victoria; Longford; Keremeos; Terrace), New Hampshire (6 mi S. Gorham, Notch Road), New York (Ithaca; Oneonta; Canadarago Lake), Massachusetts (Springfield), Michigan (Ann Arbor), Montana (Missoula), Wyoming (Yellowstone National Park, Cathedral Mt.), Oregon (Joseph), Colorado (Maybell; Nederland), North Carolina (Highlands, 3800 ft; Clingman's Dome), Virginia (Mountain Lake), Minnesota (Kawishiwi Field Lab.), Florida (Gainesville; Torreya St. Park), Texas (Navasota), Nevada (Lee Canyon, 38 mi. NW Las Vegas), California (Mono Co., Tom's Place; Oioville; San Francisco; Mill Valley, Marin Co.; Stanislaw Co., 5 mi. N. Turlock Lake; Pt. Reyes, Marin Co.; Mineral, 7400 ft; Tanayon Lake), Mexico (Dgo, 9000 ft, 10 mi. W. of El Salto; Chis., 7200 ft, S. Crist. Las Casas) (CNC, CAS, UCA, AMNH, RMNH, TC).

Specimens examined from the Palaearctic region: Finland (Korpo; Träskriäs; Jomala), Sweden (Ekshärad), USSR (Pavilnys; Ilmen, S. of Leningrad), Japan (Mt. Arakura, 1300 m; Nagano, 400 m; Shizuoka; Soranuma, Hokkaido; Mt. Gozaisho, Mie Honshu; Sarobeto, Hokkaido), Netherlands (Wijster; Drijber; Heerde; Herpen; Baarle-Nassau; Delft; Ede (Sijsselt)), West Germany (Steinbach am Wörthsee; Witzenhausen; Lippoldshausen), Czechoslovakia (Kuñrá), Austria (Gampenjoch, Südtirol, 1500 m; Bischofshofen; Flachgau, Zistelalm; Salm-Moos, Salzburg; Jüdenbergalm; Söllheim Autobahn), Italia (Bolzano, Sarntal, 1250 m; Campi, Riva s. Garda, 800 m; Castel Tesino, Trento, 1200—1500 m; Meran, 650 m) (RMNH, IZP, ZMH, ZSB, UZM, EI, HC, WHC).

Specimens examined from the Afrotropical region: Zaire (Lubumbashi (= Elizabethville)) (CNC, RMNH) and from the Oriental region (or South Palaearctic): India (Kashmir, Ladakh, Batalik, 2743 m) (DZD).

The holotype of *Ichneumon extensor* Linnaeus was examined by Mr. T. Huddleston (London), who kindly supplied his notes. This reveals that *Charmon gracilis* (Provancher) is actually a junior synonym of *extensor*. The holotype of *extensor* is in the Linnean Collection of the Linnean Society at London; the condition of this very dirty specimen is fairly reasonable. It bears two handwritten labels, one by Linnaeus ("34 *extensor*") and one by Smith ("*extensor* 935"). The pterostigma is very pale yellow but with a slightly infuscated border, the hind tibia

is infuscated apically, the hind tarsus is slightly infuscated, and the length of the ovipositor sheath is 1.22 times fore wing.

The holotype of *C. gracilis* (Provancher) (PC) was not available for examination, but the description of the colour by Provancher indicates its synonymy with *extensor*.

The variation of *C. extensor* (L.) is considerable: length of fore wing 3.5—5.3 mm; length of ovipositor sheath 1.21—1.55 times fore wing, exceptionally shorter; pterostigma and hind legs usually infuscated, but completely yellowish specimens occur (as in *cruentatus*). Especially the African specimens are yellowish; the occurrence of *extensor* and *cruentatus* in the Afrotropical region is in my opinion the result of a recent (Quarternary) invasion of both species from the Palaearctic region. The crossing of the Sahara was probably fairly easy during the last ice-age (De Jong, 1976). The only stable difference I could find was the yellowish colour, while colour is known to be a factor easily influenced by the temperature during the development of the larva and/or pupa. Also in the (Nearctic) Sonoran region *C. extensor* (L.) becomes more or less yellowish, probably also because of the influence of the temperature. In Europe *extensor* seems to be most common (compared with *cruentatus*) where a (sub)continental climate prevails, while *cruentatus* seems to be most common in a more or less Atlantic climate. Some of the specimens examined were taken at light.

Known hosts of examined specimens: *Acleris variana* (Fernald), *A. fuscana* (?), *A. minutacinderella* (?), *A. oxycoccana* Packard, *Argyrotaenia pinatubana* (Kearfott), *A. tabulana* (?), *Choristoneura fumiferana* (Clemens), *C. murinana* (Hübner), *Coleophora ulmifoliella* (?), *Dioryctria reniculella* (Grote), *Epinotia infuscana* (?), *E. nigricana* (?), *Eucordylea atrupictella* Dietz, *Eucosma radicana* (Walsingham), *Evagora* spec. (on Elm, Hemlock, and Black fir), *Hoffmannophila pseudospretella* Stainton, *Laspeyresia molesta* (Busck), *L.* (?) *arboreus* (?), *Operophthora bruceata* Hulst, *Recurvaria milleri* Busck, *R. starki* Freeman, *R. apicitripunctella* (Clemens) (on *Tsuga canadensis*), *R. canusella* Chambers, and *R. piceaella* Kearfott.

Charmon brevinervis spec. nov.
(figs. 32—44)

Holotype, ♀, length of body and of fore wing 4.4 mm.

Head. — Antennal segments 30, but apical segments missing, its 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 5.6 and 5.2 times their width, respectively (fig. 34); length of maxillary palp equal to height of head (fig. 32); dorsal length of eye 1.5 times temple; temple roundly narrowed apicad (fig. 44); POL : ∅ ocellus : OOL = 5 : 6 : 10; frons weakly concave; face indistinctly punctulate and with some rugulosity near antennal sockets (fig. 42); clypeus transversely convex, its surface almost smooth, and its apical margin almost straight medially, with long setae (fig. 42); length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; pronotal side smooth, except for some crenulae medio-anteriorly and posteriorly (fig. 32); notauli

completely impressed, but shallowly and indistinctly crenulate (fig. 43); mesoscutum smooth; metanotum with one medial carina; surface of propodeum smooth, but medially weakly rugulose.

Wings. — Fore wing: r : SR1 + 3-SR : 2-SR = 15 : 111 : 22; 1-SR + M weakly sinuate (fig. 37); cu-a short, almost straight, much shorter than 1-CU1 (fig. 35); 1-CU1 : 2-CU1 = 6 : 15; M + CU1 basally reduced (which is in other species complete, in fig. 75 of *Cyclocormus luteus* Cameron dotted because of damage). Hind wing: SC + R1 weakly curved; 1-M : cu-a = 0.4 : 1.

Legs. — Femur, tibia, and basitarsus of hind leg 5.3, 10.0, and 7.4 times their width, respectively; length of spurs of hind tibia 0.3 times the basitarsus, subequal (fig. 38).

Metasoma. — Length of 1st tergite 1.6 times its apical width, its surface rather coarsely longitudinally striate; dorsal carinae of 1st tergite developed in basal 0.4 and spiracles weakly protruding (fig. 41); 2nd tergite smooth; length of ovipositor sheath 0.68 times fore wing.

Colour. — Yellowish-brown; middle of pterostigma, wing veins in middle third of fore wing, propodeum, metapleuron, and 1st tergite, more or less dark brown; hind tarsus rather whitish-yellow.

Holotype in RMNH, Leiden, ♀: "Neth. Ind.-American New Guinea Exped., Rattan Camp, 1150 m, ii.1939, L. J. Toxopeus". For the location of this camp, see Toxopeus (1940).

Note. Besides the rather diffuse character-differences such as the somewhat longer malar space, the stouter mesosoma, the rather short vein 1-M of the hind wing, the rather transverse 1st subdiscal cell, and the long setae at the clypeal margin, this species is characterized by the reduction of the basal half of vein M + CU1 of fore wing, the short cu-a of fore wing and the short ovipositor sheath, combined with its coloration. It is surprising to see how close this species is to both other species of *Charmon*.

Charmon cruentatus Haliday
(figs. 45—79)

Haliday, 1833, Ent. Mag. 1: 262.
Nees von Esenbeck, 1834, Hym. Ichn. affin. Mon. 1: 236 (*Eubadizon pectoralis*). **Syn. nov.**
Cresson, 1872, Can. Ent. 4: 230 (*Eubadizon pleuralis*). **Syn. nov.**
Cameron, 1911, Ann. Transv. Mus. 2: 209 (*Cyclocormus luteus*). **Syn. nov.**
Hellen, 1958, Soc. Fauna Flora Fennica 4: 29 (*Eubadizon brevicauda*). **Syn. nov.**
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 228, 230, 235 (*Eubadizon extensor* auct.).
Van Achterberg, 1974b, Norsk. ent. Tidsskr. 21(1): 110.
Mason, 1974, Proc. ent. Soc. Wash. 76(3): 237, 238.
Gauld & Huddleston, 1976, Entomologist's Gaz. 27: 43, 47, fig. 18.
Van Achterberg, 1976b, Tijdschr. Ent. 119(3): fig. 100.

Redescribed from the neotype of *Eubadizon pectoralis* Nees, ♀, length of body 5.1, of fore wing 5.3 mm.

Head. — Antennal segments 44, its 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 4.8 and 4.2 times their width, respectively, both penultimate segments 1.8 and 2.2 times their width, respectively (fig. 53); length of maxillary palp 1.5 times height of head (fig. 45); dorsal length of eye 2.5 times temple; temple directly roundly narrowed apicad (fig. 50); POL : ∅ ocellus : OOL = 6 : 5 : 6; frons flat; face smooth, except for some striation near the antennal sockets (fig. 54); clypeus convex, punctulate, its apical margin straight medially and crenulate; length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.5 times its height; pronotal side anteriorly crenulate-striate and posteriorly crenulate-rugose, rest smooth (fig. 45); notauli impressed and narrowly crenulate (fig. 56); mesoscutum smooth, only medially punctulate; metanotum with one medial carina; surface of propodeum smooth, but medially punctate-rugose.

Wings. — Fore wing: r : SR1+3-SR : 2-SR = 9 : 53 : 13; 1-SR+M almost straight (fig. 49); cu-a long, inclivous, longer than 1-CU1; 1-CU1 : 2-CU1 = 2 : 38. Hind wing: SC+R1 slightly curved; 1-M : cu-a = 0.8 : 1.

Legs. — Femur, tibia, and basitarsus of hind leg 6.2, 12.0, and 10.8 times their width, respectively; length of spurs of hind tibia 0.3 times its basitarsus, subequal (fig. 51).

Metasoma. — Length of 1st tergite 1.7 times its apical width, its surface longitudinally striate (fig. 58); dorsal carinae of 1st tergite developed in front of the weakly protruding spiracles (fig. 58); 2nd tergite smooth, but subbasally indistinctly microsculptured; length of ovipositor sheath 1.05 times fore wing.

Colour. — Dark reddish-brown; palpi, pedicellus dorsally, annellus, patch between eyes and ocelli, tegulae, ptero- and parastigma, C+SC+R of fore wing, metasoma medio-ventrally and legs, yellowish; mandibles, mesopleuron, mesosternum and metapleuron, reddish; stemmaticum blackish.

Neotype in KBIN, Brussels, ♀: "Coll. Wesmael", "1879", "♂ *Eubadizon pectoralis* N. V. Es. ♀, det. C. Wesmael", "Type". Neotype of *pectoralis* herewith selected, and labelled accordingly. Because Wesmael is the first revisor and the Nees types are lost, a neotype is chosen to fix this name to one of the Palaearctic species. The lectotype of *Eubadizon pleuralis* (Cresson) (♀, ANSP) from Missouri is a genuine *cruentatus*, its ovipositor sheath is 1.06 times fore wing, while the legs and pterostigma are yellowish.

The holotype of *Eubadizon brevicauda* Hellén (WHC: "Terijoki, Hellén") from Finland is an aberrant form of *cruentatus* with very short ovipositor (figs. 60—71), its sheath is 0.60 times fore wing. Additional specimens of this form have been examined from Norway (1 ♀, Selva, nr. entrance of Trondheimsfjord, ca. 150 m), from the Netherlands (1 ♀, Wijster), and from Canada. A series reared from *Acleris variana* (Fernald) (Vancouver, British Columbia) showed that the short ovipositor occasionally occurs within a group of normal *cruentatus* specimens. The length of the ovipositor sheath of the form *brevicaudus* varies from 0.60—0.74 times fore wing. The cocoon of *cruentatus* is (as is that of *extensor*) a parchment-like brownish cocoon, covered by a fine filamentous tissue.

The holotype of *Charmon cruentatus* Haliday (♀, NMI) differs not from *Charmon*

extensor auct. nec L. The type is rather dirty, bears an old handwritten label "*cruentatus*", has a rather short ovipositor (sheath ca. 0.85 times fore wing), with legs and pterostigma yellowish.

The holotype of *Cyclocormus luteus* Cameron (♀, TMP, figs. 72—79) from S. Africa is a yellowish form of *cruentatus* as far as can be judged from the few Afrotropical specimens available for study. The body is mainly yellowish, with the apical antennal segments, mesopleuron, propodeum, 1st tergite, metasoma apically, pterostigma, and ovipositor sheath, more or less infuscated; stemmaticum black; length of ovipositor sheath 1.05 times fore wing and antennal segments 37.

Specimens examined: 260 ♀ and 102 ♂. From the Nearctic region: North West Territories (Judith Island, McKenzie River), British Columbia (Robson; Salmon River; Cultus Lake; Vancouver; Parksville); Ontario (St. Davids; Kimborn; Sioux Lookout; Orillia; Mer Bleue; Iron Bridge; Trenton); Quebec (Knowlton); North Carolina (Cherokee; Highlands, 3800 ft); Virginia (Mountain Lake; Roanoake); Utah (Longan); Illinois (Urbana); Kentucky (Mammoth Cave, Watl. Pk.); Florida (Gainesville; Torreya St. Park); California (Pozo, S.L.O. C.; Kernvale, Kern Co.; Eel River Rgr. Sta., Mendo Co., 1500 ft); Mexico (Baja California, 1 mi. E. Mission Santa Domingo) (CNC, UCA, RMNH).

Specimens examined from the Palaearctic region: Finland (Helsinki; Taivassalo; Vehkalahti; Lemland, Flaka); Denmark (no localities); Ireland (id.); England (Wyck Rissington, Glos.); Netherlands (Wijster; Assel (nr. Zwolle); Heerde; Putten; Otterlo; Naardermeer; Muiderberg; Overveen; Waarder; Asperen; Den Haag; Delft; Meijendel, Kijfhoek, Bierlap; Oostvoorne, dunes; Ouddorp; Oostkapelle; Valkenswaard; Schayk; Asselt), West Germany (Aachen; Thüringen; Bramwald; Grainbach, 800 m; Wiershausen; Gröbenzeller; Kottenforst (nr. Bonn); Rondorfer Tal, Siebengebirge; Unteres Ahrtal, Rheinprov.; Geisenheim, Rheingau); Austria (Salzburg, Flachgau, Veitlbruch; St. Peter, Ahrntal, Süd-Tirol, 1300 m; Obergurgl, Tirol, 1950 m); Italy (Campi, Riva s. Garda, 1500 m); France (Agoz, Haute Pyr.); Bulgaria (Rodopi, Velinograd) (RMNH, ZMH, HC, UZM, EI, ZMB, ZIL, CVR, CNC). From the Afrotropical region: Ivory Coast (Bingerville) and S. Africa (Pretoria) (MAC, TMP).

Variation: Antennal segments 37—44; length of fore wing 3.3—5.9, and of body 2.9—5.1 mm; length of 1st tergite 1.3—1.6 times fore wing; length of ovipositor sheath 0.60—1.20 times fore wing and exceptionally apex of hind tibia infuscated.

Known hosts of examined specimens: *Acleris variana* (Fernald), *Archips rosaceana* Harris, and *Grapholita molesta* (Busck).

Tribus HOMOLOBINI nov.

Diagnosis. — Occipital carina completely developed medio-dorsally; 3rd labial palp segment well-developed, although often small (fig. 82); tarsal claws with or without a subapical tooth or lamella; anterior tentorial pits deep and large; precoxal suture variable (figs. 105, 204, 616); middle lobe of mesoscutum more or less rounded anteriorly and without a protruding horizontal part (figs. 92, 119); vein 2A of hind wing absent; marginal cell of hind wing widened apicad; mandibles

twisted apically; vein 2-R1 of fore wing absent (fig. 85) or short (fig. 107); scutellum narrowly sculptured medio-posteriorly (figs. 119, 359); fringe of wings short; hind tibial spurs unequal and long, inner spur reaching middle of basitarsus (fig. 99); lateral carina of mesoscutum and vein r-m of fore wing present (fig. 18).

Distribution. — Cosmopolitan. Contains two genera: *Exasticolus* gen. nov. and *Homolobus* Foerster.

Genus **Exasticolus** nov.

Etymology: from "ἠξαστις" (Greek for "fringe") and "κωλον" (Greek for "leg"), because of the fringe-like comb apically at the inner side of the hind tibia. Gender: masculine.

Type-species: *Zele fuscicornis* Cameron.

Diagnosis. — Length of body 7.1—10.5, and of fore wing 6.6—10.1 mm; ventral margin of clypeus thin, separated from clypeus (fig. 91) and smooth; eyes bare, large, and distinctly emarginate (fig. 96); temples roundly narrowed apicad (fig. 86); metapleural flange large, lamelliform (fig. 80); precoxal suture mainly smooth (figs. 80, 105); antescutal depression medium-sized to rather large, deep (fig. 119); 3rd segment of labial palp small, length of 4th segment 6—12 times 3rd segment (figs. 82, 97, 117); ocelli large (fig. 91); epistomal suture present; pleural suture shallowly and narrowly crenulate (fig. 80); metapleuron mainly smooth (figs. 92, 105); episternal scrobe deep and small to medium-sized; notauli complete, and narrowly impressed (fig. 119); scutellar suture deep, with one longitudinal carina; scutellum smooth and convex; side of scutellum mainly smooth but posteriorly crenulate; propodeum at most with some irregular carinae, mainly smooth and its posterior part not separated from its antero-dorsal part; propodeal spiracle large, (sub)elliptical (fig. 80); antepropodeal depression medium-sized; 1-SR + M of fore wing curved distad (figs. 85, 94); 1st discal cell of fore wing subpetiolate; r of hind wing absent; SR of hind wing straight; SC + R1 of hind wing rather straight; 2-SC + R of hind wing short; 1 r-m of hind wing more (figs. 85, 94) or less (fig. 107) curved distad; cu-a of fore wing long and straight; parastigma large (fig. 85); 1A + 2A and SR1 of fore wing mainly straight; tarsi with a weakly-developed row of setae ventrally; inner aspect of hind tibia with a well-developed comb of bristles apically (figs. 98, 882); claws with a rather small, slender subapical tooth; length of hind femur 5.2—7.2 times its width; length of 1st tergite 2.2—3.0 times its apical width; 1st tergite concave medio-basally, convex medially and apically rather flat; 2nd tergite with a sharp crease laterally (fig. 80); metasoma of ♀ compressed apically; length of ovipositor sheath 0.06—0.10 times fore wing.

Biology. — The only host record (of *E. nigriceps* (Enderlein)) indicates a relation to the Lasiocampidae, which may suggests the function of the peculiar comb of the hind tibia. The comb may facilitate walking on the webs of the hosts during infestation. The Lasiocampidae are not known to be hosts of *Homolobus*, the sister-group of *Exasticolus*.

Distribution. — New World, contains three known species.

Key to the species of the genus *Exasticolus*

1. Middle coxa with an antero-ventral tooth (figs. 80, 89); 2nd tergite behind its middle rugulose-aciculate (fig. 90); hind basitarsus stout, its length 6.4—6.8 times its maximum width (fig. 733); length of maxillary palp of ♀ 1.2—1.3 times height of head . . . . . *tuberculatus* spec. nov. (p. 272)
— Middle coxa without a tooth (fig. 128); 2nd tergite usually smooth, at most anterior half somewhat rugulose or pimply (figs. 104, 111); hind basitarsus slender, its length 9.1—10.4 times its width (fig. 99); length of maxillary palp of ♀ 1.5—2.1 times height of head 2
2. Length of malar space of ♀ 0.4—0.6 times basal width of mandible (fig. 96); face less coarsely rugose and yellowish (fig. 96); vertex with long rugae, reaching stemmaticum (fig. 95), exceptionally reduced; hind leg of ♀ yellowish, exceptionally partly dark brown . . *fuscicornis* (Cameron) (p. 273)
— Length of malar space of ♀ 0.2—0.3 times basal width of mandible (fig. 110); face coarsely rugose and blackish-brown (fig. 110); vertex almost smooth, at most with some short rugae which do not reach the stemmaticum (fig. 116); hind leg of ♀ partly dark brown . . . . . *nigriceps* (Enderlein) (p. 275)

Exasticolus tuberculatus spec. nov.
(figs. 80—91, 731—733)

Holotype, ♀, length of body and of fore wing both 9.1 mm.

Head. — Antennal segments 47, 3rd segment 1.3 times 4th segment and with an indistinctly developed ridge, length of 3rd and 4th segments 3.9 and 3.1 times their width, respectively, both penultimate segments 2.7 and 2.3 times their width, respectively (fig. 83); length of maxillary palp 1.3 times height of head; dorsal length of eye 2.4 times temple; POL : ∅ ocellus : OOL = 4 : 6 : 4; frons smooth, rather flat; vertex dull coriaceous, and with some rugae anteriorly (fig. 86); face shiny coriaceous, weakly convex; clypeus convex, indistinctly punctate (fig. 91); malar space 0.6 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum smooth, but medio-anteriorly crenulate, posteriorly and ventrally narrowly rugose (fig. 80); epicnemial area and mesopleuron smooth; precoxal suture weakly impressed, only anteriorly with some rugae (fig. 80); notauli narrowly crenulate (fig. 731); mesoscutal lobes remotely and indistinctly punctulate; surface of propodeum submedially with some transverse rugae and anteriorly with a weak medial carina, remainder smooth.

Wings. — Fore wing: r : 3-SR : SR1 = 8 : 12 : 51; 1-CU1 : 2-CU1 = 2 : 26; 2-SR : 3-SR : r-m = 13 : 12 : 8; 2A only developed as a brownish stripe; area basally of 2A mainly bare as basal third of subbasal cell. Hind wing: 1r-m curved distad (fig. 81).

Legs. — Hind coxa punctulate, with some striae apico-dorsally (fig. 80); middle coxa with a well developed tooth antero-ventrally (fig. 89); claws indistinctly yellowish pectinate basally, except the inner claw (figs. 87, 88); femur, tibia, and basitarsus of hind leg 5.2, 9.5, and 6.8 times their width, respectively; length of

spurs of hind tibia 0.8 and 0.6 times basitarsus, somewhat curved, almost straight.

Metasoma. — Length of 1st tergite 2.2 times its apical width, its surface rather coarsely rugose behind the spiracles (fig. 80); dorsal carinae of 1st tergite absent, except for a basal remnant, and its spiracles protruding; anterior third of 2nd tergite almost smooth, somewhat coriaceous, its posterior two-thirds distinctly obliquely rugose-aciculate; 3rd tergite only pimply; length of ovipositor sheath 0.09 time fore wing.

Colour. — Brownish-yellow; stemmaticum and vertex around stemmaticum, blackish; mesoscutum somewhat more dark brown.

Holotype in TC, Ann Arbor: "Nova Teutonia, Braz., Santa Catarina, x.4.48, Fritz Plaumann". Paratype: 1 ♀, CNC, "Nova Teutonia, 27°11'S, 52°23'W, Brazil, 300—500 m, 25.ix.1948, Fritz Plaumann". Paratype: length of fore wing 9.3 mm, length of ovipositor sheath 0.10 times fore wing; length of maxillary palp 1.2 times length of head; length of hind basitarsus 6.4 times its width; 2nd tergite medially sculptured, but apical third mainly smooth.

Exasticolus fuscicornis (Cameron) comb. nov.
(figs. 92—104, 882—884)

Cameron, 1887, Biologia cent.-am., Hym. 1: 509, fig. 17—4 (as *Zele*).
Viereck, 1911, Proc. U.S. natn. Mus. 40: 478 (*Zele rosenbergi*). **Syn. nov.**
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 224—226.

Holotype, ♀, length of body 10.5, of fore wing 10.1 mm.

Head. — Antenna incomplete (but in 9 other ♀ specimens 42—48), remaining segments 13, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segment 3.8 and 3.1 times their width, respectively; length of maxillary palp 1.7 times height of head; dorsal length of eye 2.4 times temple; POL : ∅ ocellus : OOL = 4 : 10 : 4; frons concave, and almost smooth; vertex finely coriaceous, with some coarse rugae anteriorly, which reach the stemmaticum (fig. 95); face rather smooth and flat, near antennal sockets and laterally weakly transversely striate (fig. 96); clypeus convex, smooth, except for some punctures medially and some striae laterally; malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum smooth, except for some medial and apical rugae (fig. 92); epicnemial area smooth, except for some short rugae; mesopleuron superficially punctulate; precoxal suture absent, except for a shallow, smooth depression; notauli almost smooth anteriorly, medially superficially and finely crenulate (fig. 101); mesoscutal lobes smooth; surface of propodeum mainly smooth, except for an irregular transverse carina and some rugae between the dorsal and posterior surface (fig. 92).

Wings. — Fore wing: r : 3-SR : SR1 = 16 : 11 : 57; 1-CU1 : 2-CU1 = 3 : 21; 2-SR : 3-SR : r-m = 15 : 11 : 7; 2A and surroundings as in *tuberculatus*. Hind wing: 1r-m more or less curved distad (fig. 92).

Legs. — Hind coxa smooth, but dorso-apically striate (fig. 92); middle coxa without tubercle; inner hind claw equal to its outer claw (but in some specimens

slightly different), setose; femur, tibia, and basitarsus of hind leg 6.2, 9.9, and 10.0 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 3.0 times its apical width, its surface superficially and irregularly striate laterally (fig. 104); dorsal carinae of 1st tergite superficially developed up to middle of tergite; 2nd tergite smooth; length of ovipositor sheath 0.06 times fore wing.

Colour. — Brownish-yellow; antenna (as much as is present, but scapus, (except for a longitudinal dark brown stripe at the outer side and pedicellus, yellowish), stemmaticum and vertex, blackish-brown; hind basitarsus and spurs lighter than hind tibia.

Holotype in BM, London: "Type, H.T.", "B.M. Type, Hym. 3.c.862", "B.C.A. Hymen. I., *Zele fuscicornis*, Cam.", "Paso Antonio, 400 ft, Champion", "*Zele fuscicornis* Cam., Type, B.C.A., ii.4.09." (in Cameron's handwriting). The type-locality is situated in Guatemala.

Note. The males are very similar to the females in coloration, at most the metasoma apically and the mesonotum blackish. Sometimes the antennae of both sexes are rather yellowish brown. Total specimens examined: 88 ♀ and 168 ♂. From the Nearctic region: Ontario (Rondeau Prov. Pk.), Michigan (Ann Arbor), Maryland (Takooma Pk.), South Carolina (Wattacoo; Greenville), Georgia (Forsyth), Florida (Ft. Myers). From the Neotropical region: Mexico (Ver., Minatittan; Palomares, Oaxaco; Teapa, Tabasco), Panama (Fortuna, Chiriqui, 8°44′N, 82°15′W, 1050 m, at light), Costa Rica (Monteverde), Colombia (Dept. Magdalena, Pueblo Bello, 45 km W. Valledupar, Sierra Nevadade, S. Marta, 1100 m; Anchicaya Dam, 1200 (m?), 17 km E. Buenavanture; Colegio, Bolivar; Cundinamarca, Finca Bella Vista, nr. Sasaina), Ecuador (Coca, Napo R., Napo, 250 m; La Toma, W. Loja, 1500 m; Batapamba, 700 (m?); Sto. Domingo, 680 m, Pich. Prov.; Zambra), Surinam (Sipaliwini, at light), Peru (Loreto, Pucallpa; Tingo Maria, 750 m), Bolivia (20 km W. Laranjeiras, Dept. Beni; Rio Itenez, Pampa de Meio, Dept. Beni; mouth of Rio Baures; Rio Mamore, Dept. Beni, approx. 5 km NW mouth of Rio Grande; Rio Mamore, Dept. Santa Cruz, 2 km N. mouth of Rio Chapare; Dpto Santa Cruz, Estac. Experimental General Saavedra; Dpto Santa Cruz, Buena Vista; Alto Beni, Inicua R., 1100 m), Brazil (Nova Teutonia, Santa Catarina, 27°11′S, 52°33′W, 300—500 m; Sampaio, Teodora; Jatai, Goias; Bahia, Encruzihada, 960 m; Manaus; Pedra Azul, M. Ger., 600 m; Caruaru, 900 m; Serra do Caraca, S. Barbara, M. Ger., 1600 m; Jacareacanga, Pará; Linhares, E. Santo; Reprêsa Rio Grande, Guanabare; Itatiaja Nat. Pk., Rio de Jan.; Surumu, Roraine; Reserva Ducke, Manaus; Vilhena, Rond.), Paraguay (Escobar; Filadelfia, Fern. Col. Chaco, at light), and Argentina (Misiones, San Pedro; Salta, Tartagal; Corrientes, Las Narias, Camino Villa Virasoro; Misiones, Dos de Mayo; 11 km W. Las Cejas, Tucuman; La Plata; Horco Molle, nr. Tucuman) (TC, CNC, RMNH, IML, BM, USNM, TMA, MSU, AMNH, CAS).

Variation: Antennal segments 42—49; length of body 6.5—8.6, of fore wing 5.7—8.4 mm; length of ovipositor sheath 0.05—0.08 times fore wing; 1st tergite 2.2—2.9 times its apical width.

The holotype of *Zele rosenbergi* Viereck (♀, USNM, Washington: "Chanchamayo, E. Peru", "Collection Rosenberg", "Type No. 13797. U.S.N.M.", "*Zele rosenbergi* Vier. Type, ♀") is a typical *fuscicornis* specimen. The length of the malar space is 0.5 times basal width of mandible; claws absent; vein 1r-m of hind wing somewhat more curved than in holotype of *fuscicornis*.

Exasticolus nigriceps (Enderlein) comb. nov.
(figs. 105—111, 116—119)

Enderlein, (1918) 1920, Arch. Naturgesch. 84A(11): 217.
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 225.

Holotype, ♀, length of body 7.8, of fore wing 7.3 mm.

Head. — Antennal segments 46, 3rd segment 1.3 times 4th segment, length of 3rd and 4th segment 3.8 and 2.9 times their width, respectively, its penultimate segments 1.8 and 2.3 times their width; length of maxillary palp 1.7 times height of head; dorsal length of eye 2.9 times temple; POL : ∅ ocellus : OOL = 6 : 8 : 4; frons concave, smooth; vertex convex, largely smooth, slightly coriaceous (fig. 116); face rather flat and mainly, rather coarsely, transversely rugose (fig. 110); clypeus convex, smooth, except for some punctures; malar space 0.3 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum smooth, except for some medial and apical rugae (fig. 105); epicnemial area smooth, but anteriorly with some short rugae; mesopleuron superficially punctulate; precoxal suture absent, except for a smooth, weak depression (fig. 105); notauli finely and densely crenulate (fig. 119); mesoscutal lobes superficially punctulate; surface of propodeum mainly smooth, only submedially with an irregular transverse carina and some rugae (fig. 105).

Wings. — Fore wing: r : 3-SR : SR1 = 12 : 12 : 58; 1-CU1 : 2-CU1 = 2 : 25; 2-SR : 3-SR : r-m = 14 : 12 : 7; 2A present as a short remnant (fig. 107). Hind wing: 1r-m straight; short remnant of 2A present.

Legs. — Hind coxa smooth, except for some striae dorso-apically (fig. 108); middle coxa without tubercle; hind claws absent; femur, tibia, and basitarsus of hind leg 6.2, 9.9, and 10.0 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.9 times its apical width, its surface irregularly, longitudinally striate, with a smooth tubercle apically (fig. 111); dorsal carinae almost reaching apex of 1st tergite; 2nd tergite smooth, but superficially pimply; length of ovipositor sheath 0.06 times fore wing.

Colour. — Brownish-yellow; head (except for mandibles), 3rd-11th antennal segments and apical 0.7 of hind tibia, blackish-brown; scapus and pedicellus, partly reddish-brown; hind tarsus and palpi rather whitish-yellow.

Holotype in PAN, Warsaw: "Mexico, Chiapas, L. Conradt S., 15—11—07", "Type", "*Zele nigriceps* Enderl., ♀, Type, Dr. Enderlein, det. 1918", "Mus. Zool. Polonicum, Warsawa 12/45".

Number of additional specimens examined: 9 ♀ and 3 ♂. Variation: length of body 7.1—7.5, of fore wing 6.6—7.5 mm, length of 1st tergite 2.5—2.9 times its apical width; length of ovipositor sheath 0.07—0.08 times fore wing; antennal segments 44—48; length of maxillary palp 1.5—2.1 times height of head; dorsal carinae of 1st tergite sometimes absent or nearly so; length of malar space of ♀ 0.2—0.3 times basal width of mandible (in males 0.3—0.4 times).

Additional specimens examined from: Costa Rica (San Pedro de Montes de Oca), Ecuador (Loja; Coca & Napo Rivers; Playas de Montalro), Peru (nr. Marcapata, 30 m), Bolivia (Cochabamba, 17 km E. Villa Tunari), (British) Guyana (Upper Courantyne R., King Frederick, William IV Falls), and Brazil (Nova Teutonia, Santa Catarina; Villa Vera, 12°30'S, 50°31'W; Sinop, M. Grosso, 12°31'S, 55°37'W) (USNM, BM, IML, TC, RMNH). Only one specimen (from Costa Rica) was reared, the host being *Gloveria ballovi* Schaus, and belonging to the Lasiocampidae (Lepidoptera).

Genus **Homolobus** Foerster

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Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 142.
Shenefelt, 1970, id. 5(2): 220—227.
Čapek, 1970, Can. Ent. 102: 851, 853, 868, 869.
Marsh, 1971, Ann. ent. Soc. Am. 56: 847.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 180, 230, 231.
Čapek, 1972, Ent. Problémy 10: 133, 136.
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Čapek, 1975, Biológia 30(11): 819.
Gauld & Huddleston, 1976, Entomologist's Gaz. 27: 47.
Van Achterberg, 1976b, Tijdschr. Ent. 119: 37, 39, 44, 50, figs. 103, 104.
Jakimavičius, 1976, Tr. AN Lit. SSR B, 2(74): 90, 93, 95.
Tobias, 1976, Opr. Fauna SSSR 110: 31, 131, 133, fig. 39: 1—10.

Type-species: *Phylax discolor* Wesmael.

Synonyms: *Zele* auct. nec Curtis, 1832; *Phylax* Wesmael, 1835, nec Dahl, 1823; *Phylacter* Reinhard, 1863 (nom. nov. for *Phylax* Wesmael); *Apatia* Enderlein, (1918)1920. **Syn. nov.**

Diagnosis. — Length of body 4.4—14.6, of fore wing 4.6—15.9 mm; ventral margin of clypeus rather thin, not (fig. 132) or distinctly (fig. 360) separated from clypeus, smooth; eyes bare, large, weakly emarginate at inner sides (fig. 572) or almost immarginate (fig. 525); metapleural flange large, more (fig. 327) or less (fig. 416) lamelliform; precoxal suture variable; antescutal depression medium-sized to large, deep, with 1—3 longitudinal carinae (figs. 250, 331) or only crenulate (fig. 332), 3rd segment of labial palp medium-sized to small, length of 4th segment

1.6—7.0 times 3rd segment (figs. 164, 265); epistomal suture complete (fig. 311); ocelli medium-sized (fig. 213) to large (figs. 127, 275); pleural suture rather narrowly and shallowly crenulate (fig. 616); metapleuron smooth (fig. 263) to coarsely sculptured (fig. 527); episternal scrobe deep, medium-sized (figs. 633, 647); notauli complete, rather narrowly (fig. 473) to widely (fig. 413) impressed and crenulate; scutellum smooth or punctulate, and convex; side of scutellum crenulate (fig. 332), rugose (fig. 454) or striate (fig. 413); propodeum mainly smooth (fig. 128), coarsely areolate (fig. 400), or extensively rugose (fig. 414); antero-dorsal part of propodeum not (fig. 120) or distinctly (fig. 513) separated from its posterior part; propodeal spiracle medium-sized to large, elliptical or rather round (figs. 527, 541, 577); antepropodeal depression rather wide to medium-sized (figs. 250, 286, 661); 1-SR + M of fore wing straight (figs. 130, 368); 1st discal cell of fore wing sessile (figs. 196, 484) or subpetiolate (figs. 469, 455); r of hind wing present (fig. 122) or absent (fig. 147); SR of hind wing variable (figs. 184, 243, 368, 435); SC + R1 of hind wing straight (fig. 425) to curved (fig. 343); 2-SC + R of hind wing rather long (fig. 196), short and quadrate (figs. 266, 267) to vertical (figs. 506, 507); 1r-m of hind wing straight (fig. 122); cu-a of fore wing long, inclivous (fig. 130), straight (fig. 147) or somewhat curved basad (fig. 494); parastigma large (figs. 122, 484) to medium-sized (fig. 603); 1A + 2A and SR1 of fore wing straight (fig. 147) or 1A + 2A (figs. 368, 369) and SR1 (fig. 258) curved; tarsi without a ventral row of setae; inner aspect of apex of hind tibia without a comb of bristles; claws very variable, simple and without a subapical tooth (fig. 252), with subapical tooth (figs. 350, 351), with a ventral lamella (fig. 392), or with an enlarged lamella (figs. 393, 394); length of hind femur 4.7—8.1 times its width; length of 1st tergite 1.7—4.8 times its apical width; 1st tergite concave mediobasally and more or less convex medially (figs. 489, 615); 2nd tergite with a sharp lateral crease (fig. 401) or with a rounded fold (fig. 120); metasoma of ♀ compressed apically (fig. 231); length of ovipositor sheath 0.04—0.79 times fore wing.

Biology. — The numerous host records indicate that the species of *Homolobus* are parasites of caterpillars with more or less exposed way of life, mainly belonging to the families Noctuidae and Geometridae.

Distribution. — Cosmopolitan. Contains five subgenera: *Apatia* Enderlein, *Chartolobus* subgen. nov., *Homolobus* Foerster, *Phylacter* Reinhard, and *Oulophus* subgen. nov.

Subgenus **Apatia** Enderlein stat. nov.

Enderlein, (1918) 1920, Arch. Naturgesch. 84A(11): 219.
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 142.

Type-species: *Apatia simillima* Enderlein (= *Bracon truncator* Say).

Diagnosis. — Length of body 4.4—9.0, of fore wing 4.6—8.7 mm; antennal segments 38—54; its 3rd—6th segments without a ridge at the inner side (figs. 879, 880); length of outer aspect of 4th segment of labial palp 1.6—5.5 times 3rd

segment; length of maxillary palp 1.0—1.4 times height of head; length of malar space 0.4—1.6 times basal width of mandible; temples roundly narrowed apicad (figs. 127, 163); length of hind femur 4.7—7.4 times its width; claws simple or nearly so, without subapical tooth or lamella (figs. 123, 152, 212); apices of hind tibial spurs of ♂ truncate and pigmented (figs. 112, 712) or sharp and hyaline (figs. 710, 713); inner hind claw of ♀ convex or straight basally, equal to its outer claw (figs. 202, 203, 881); 1A + 2A of fore wing straight; basal third of SR of hind wing mainly pigmented, not sclerotized (figs. 122, 130), straight (fig. 147) or weakly curved (fig. 161); SC + R1 of hind wing straight (fig. 146) or weakly curved (fig. 194); r of hind wing exceptionally present (fig. 122); length of 1st tergite 2.0—3.6 times its apical width; 2nd tergite smooth; length of ovipositor sheath 0.04—0.26 times fore wing; posterior part of propodeum not separated from antero-dorsal part (fig. 128).

Distribution. — With 11 out of 14 species (or 78.5%) occurring in the Afrotropical region, this is the main centre of speciation of this subgenus. Two species are extremely widely distributed: *truncator* occurs in the Holarctic, Neotropical and Oriental regions, while *ophioninus* is found in the Afrotropical, Palaearctic, and Australian regions.

Key to the species of the subgenus *Apatia*

1. Vein r of hind wing present, at least posteriorly (fig. 122); vein SR of hind wing weakly curved (fig. 122); lateral aspect of hind tibial spurs of ♂ sharp apically; Oriental . . . . . *elagabalus* (Nixon) (p. 280)
— Vein r of hind wing absent (fig. 130); vein SR of hind wing, and tibial spurs of ♂ variable 2
2. First tergite black or dark brown, strongly contrasting with the, at least partly, whitish 2nd and 3rd tergites of metasoma; propodeum mainly smooth (fig. 128); or vein SR1 of fore wing straight (fig. 147) and precoxal suture mainly smooth (fig. 144) 3
— Basal tergites of metasoma brownish-yellow, if more or less dark brown, then 2nd tergite yellowish, dark brown, or blackish and less contrasting; propodeum sculptured posteriorly (fig. 158); vein SR1 of fore wing more or less curved towards R1 (figs. 161, 184), if straight, then precoxal suture extensively sculptured (fig. 204) 4
3. Malar space comparatively short (fig. 132), 0.4—0.6 times basal width of mandible; mesoscutal lobes smooth (fig. 136); veins SR1 of fore wing and SR of hind wing curved (fig. 130); claws without small prominence subapically (fig. 133); apices of hind tibial spurs of ♂ truncate; Australian . . . . . *australiensis* (Nixon) (p. 282)
— Malar space comparatively long (fig. 151), 0.9—1.4 times basal width of mandible; mesoscutal lobes punctulate (fig. 157); veins SR1 of fore wing and SR of hind wing straight (figs. 146, 147); claws with a minute subapical prominence (figs. 152, 153); apices of hind tibial spurs of ♂ sharp; Afrotropical (Malagasy, Grande Comore) . . . . . *albipalpis* (Granger) (p. 283)

4. Length of outer aspect of 4th segment of labial palp 3.0—5.0 times the small 3rd segment (figs. 200, 222, 235), if intermediate, then vein cu-a of fore wing antefurcal (fig. 206) and/or apical half of metasoma mainly dark brown or blackish 5
— Length of outer aspect of 4th segment of labial palp 1.6—2.8 times the medium-sized 3rd segment (figs. 246, 257, 265); vein cu-a of fore wing more or less postfurcal (figs. 266, 329); metasoma mainly yellowish apically 9
5. Tarsal claws of ♀ without any prominence (figs. 202, 203); vein SR1 of fore wing curved towards R1 (figs. 161, 196); vein SR of hind wing more or less sinuate (figs. 184, 196); Malagasy or non-Afrotropical 6
— Tarsal claws of ♀ with a tiny rounded subapical prominence (figs. 212, 225); veins SR1 of fore wing and SR of hind wing straight or nearly so (figs. 206, 234); African continent 7
6. Length of 4th segment of labial palp ca. 4—5.5 times the 3rd segment (fig. 185); upper part of mesopleuron and mesoscutum smooth (figs. 182, 186); veins r and 3-SR of fore wing of equal width (fig. 161); vein SR of hind wing moderately sinuate (fig. 184) or almost straight; Holarctic, Neotropical, Oriental . . . . . *truncator* (Say) (p. 285)
— Length of 4th segment of labial palp ca. 3.0—3.5 times 3rd segment (fig. 200); upper part of mesopleuron and mesoscutum punctulate or punctate (figs. 191, 201); vein r of fore wing wider than vein 3-SR (fig. 196); vein SR of hind wing rather strongly sinuate (figs. 194, 196); Malagasy *rufithorax* (Granger) (p. 289)
7. Length of malar space 1.2—1.6 times basal width of mandible (fig. 210); apical third of metasoma blackish or dark brown . . . . . *maculatus* spec. nov. (p. 291)
— Length of malar space 0.7—1.0 times basal width of mandible (figs. 229, 238), if intermediate, then apical third of metasoma yellowish 8
8. Vein r of fore wing longer than 3-SR (fig. 219); subapical prominence of claws of ♀ very small, scarcely visible at 80× (figs. 225, 226); head, antenna and hind leg mainly dark brown; palpi, tegulae, fore and middle coxae yellowish-white; C. Africa . . . . . *alternipes* spec. nov. (p. 292)
— Vein r of fore wing shorter than 3-SR (fig. 234), exceptionally of equal length; subapical prominence of claws of ♀ small, but at 80× easily visible (fig. 237); head, antenna, hind leg, palpi, tegulae, fore and middle coxae brownish-yellow; S. Africa . . . . . *priapus* (Nixon) (p. 293)
9. Vein SR of hind wing strongly sinuate (figs. 243, 258); marginal cell of hind wing distinctly narrowed medially in respect to its basal width (fig. 254); middle lobe of mesoscutum finely and densely punctate or punctulate (figs. 250, 262); scapus more or less dark brown; vein SC+R1 of hind wing comparatively short (figs. 254, 259) 10
— Vein SR of hind wing weakly sinuate (fig. 266); marginal cell of hind wing not or weakly constricted medially in respect to its basal width (fig. 290); middle lobe of mesoscutum smooth or weakly punctulate (fig. 300); scapus mainly yellowish; vein SC + R1 of hind wing somewhat longer (figs. 267, 307) 11
10. Marginal cell of hind wing constricted just after middle of the cell (fig. 243); length of ovipositor sheath 0.24—0.26 times fore wing, the exserted ovipositor

longer than 1.5 times length of 1st tergite (fig. 240); propodeum and 1st tergite irregularly sculptured (figs. 240, 253); C. Africa *lacteiceps* spec. nov. (p. 294)

— Marginal cell of hind wing constricted in front of middle of the cell (fig. 258); length of ovipositor sheath ca. 0.14 times fore wing, the exserted ovipositor slightly longer than 1st tergite (fig. 280); propodeum and 1st tergite evenly, finely and densely rugulose (figs. 142, 255); S. Africa ..... *pulchricornis* (Nixon) (p. 296)

11. Vein 2-SC+R of hind wing transverse, longer than wide (fig. 290); length of hind femur 5.6—7.2 times its maximum width, usually comparatively slender (fig. 291), if intermediate, then upper condyli of mandibles rather far below lower level of eyes, or first tergite more slender, longer than 2.2 times its apical width (fig. 311); lateral aspect of hind tibial spurs of ♂ more or less truncate apically (figs. 296, 297) 12

— Vein 2-SC+R of hind wing vertical or quadrate (fig. 267); length of hind femur 4.6-5.8 times its maximum width, comparatively stout (fig. 269); upper condyli of mandibles comparatively close to lower level of eyes (fig. 270); 1st tergite stout (fig. 271), its length 1.7—2.2 times its apical width; lateral aspect of hind tibial spurs of ♂ sharp apically (figs. 272, 273) *huddlestoni* spec. nov. (p. 297)

12. Frontal aspect of head comparatively long, trapezoidal (figs. 311, 330); upper condyli of mandibles of ♀ distinctly below lower level of eyes (figs. 311, 330); length of malar space 0.8—1.1 times basal width of mandible, if exceptionally shorter, then claws setose basally (figs. 313, 314) 13

— Frontal aspect of head comparatively short, transverse (fig. 301); upper condyli of mandibles of ♀ close to lower level of eyes; length of malar space 0.3—0.7 times basal width of mandible; claws yellowish pectinate basally (fig. 294) ..... *ophioninus* (Vachal) (p. 298)

13. Vein SC+R1 of hind wing somewhat curved and shorter (figs. 306, 307); marginal cell of hind wing usually less widened apicad, its apical width 1.9—2.2 times its maximum basal width (fig. 306); length of fore wing 3.5—7.1 mm; claws only setose or indistinctly pectinate basally (figs. 313, 314); ovipositor sheath in undistorted position rather wide apically (fig. 303) ..... *truncatoides* spec. nov. (p. 300)

— Vein SC+R1 of hind wing almost straight and somewhat longer (figs. 329, 337); marginal cell of hind wing more widened apicad, its apical width 2.4—2.6 times its maximum basal width (fig. 329); length of fore wing 7.0—9.5 mm; claws distinctly pectinate basally (figs. 339, 340); ovipositor sheath somewhat more slender (fig. 335) ..... *pallidistigmus* (Cameron) (p. 303)

Homolobus (Apatia) elagabalus (Nixon) comb. nov.
(figs. 120—127, 284, 332, 333)

Nixon, 1938, Bull. ent. Res. 29: 417, fig. 1f (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 223, 224.

Holotype, ♀, length of body 6.3, of fore wing 6.6 mm.

Head. — Antennal segments 33, but apical segments missing (44 according to original description), 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 3.2 and 3.0 times their width, respectively; length of 4th labial palp segment ca. 3 times 3rd segment (fig. 125); length of maxillary palp 1.2 times height of head; inner sides of eyes weakly emarginate (fig. 126); dorsal length of eye 3.7 times temple; POL : ∅ ocellus : OOL = 7 : 8 : 5; frons almost flat, smooth; vertex largely smooth, somewhat punctulate by insertions of the setae; face rather flat, finely rugose-punctate, only laterally more coriaceous (fig. 126); clypeus flattened, almost smooth, somewhat punctulate; apical margin of clypeus convex medially and not distinctly separated from clypeus; length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.2 times its height; side of pronotum almost smooth, except for some short crenulae medially and rugosity posteriorly (fig. 120); epicnemial area largely smooth, somewhat superficially rugose near subalar pit (fig. 120); precoxal suture scarcely impressed, superficially reticulate-punctate; rest of mesopleuron mainly smooth; metapleural flange wide, lamelliform, and rounded apically (fig. 120); metapleuron largely smooth, reticulate-carinate ventrally; notauli rather narrow (fig. 332); mesoscutal lobes smooth, except for some punctulation; surface of propodeum mainly smooth anteriorly, with a short irregular medial carina, medially and posteriorly transversely rugose (fig. 120).

Wings. — Fore wing: r : 3-SR : SR 1 = 10 : 13 : 60; SR1 curved anteriad; cu-a slightly inclivous and apically curved basad (fig. 122); 1-CU1 : 2-CU1 = 2 : 24; 2-SR : 3-SR : r-m = 11 : 13 : 7; 2A well developed (fig. 122); area basally of 2A remotely setose. Hind wing: r present, dividing the marginal cell into two subequal parts; SC + R1 and base of SR curved.

Legs. — Hind legs absent; fore and middle claws pectinate (figs. 123, 124); length of middle tibial spurs 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.7 times its apical width, its surface smooth (fig. 333); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.6 times fore wing.

Colour. — Brownish-yellow; antenna (but apically lighter) and stemmaticum, dark brown; pterostigma more transparent yellowish.

Holotype in BM, London: "Type", "B.M. Type, Hym., 3.c.678", "*Zele elagabalus* Nixon, Type, ♀, 1938", "1938/16 slide", "3836", "pres. by Imp. Inst. Ent. BM. 1939—92", "Parasite on *Selepa celtis*", "Dehra Dun, U.P., 26.xi.1935", "SNC Expt. No. 1294". Paratypes: 10 ♂, belonging to the reared series from which the holotype was selected. The tibial spurs are sharp and hyaline apically, number of antennal segments 41—42, anterior half of vein r of hind wing absent; vertex and temples punctulate; area basally of 2A of fore wing mainly bare, and precoxal suture somewhat more rugose-striate than in holotype.

Additional specimens examined (7 ♀) from Thailand (Bangkok, ex caterpillar feeding on *Sandoricum indicum*) and Philippines (Manila) (BM, TMA, RMNH). Variation: vertex and temple punctulate or finely punctate; length of malar space 0.4—0.5 times basal width of mandible; length of fore wing 5.6—7.5 mm; length of

ovipositor sheath 0.04—0.08 times fore wing. The ♀ from Manila is slightly aberrant: hind leg somewhat darkened, pterostigma and metasoma mainly dark brown, and left hind wing with a short vein m-cu (fig. 284).

Homolobus (Apatia) australiensis (Nixon) comb. nov.
(figs. 128—137)

Nixon, 1938, Bull. ent. Res. 29: 419 (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 221.

Holotype, ♀, length of body 6.5, of fore wing 6.7 mm.

Head. — Antennal segments 37, but apical segments missing (according to original description 46), 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 3.6 and 3.2 times their width, respectively; length of 4th labial palp segment 2.9 times 3rd segment (fig. 131); length of maxillary palp 1.2 times height of head; inner sides of eyes weakly emarginate (fig. 132); dorsal length of eye 2.3 times temple; POL : ∅ ocellus : OOL = 6 : 7 : 6; frons rather flat, largely smooth, with some striae near anterior ocellus and punctulate laterally (fig. 134); vertex mainly smooth, except for some punctulation; face and clypeus flattened, punctulate (fig. 132); apical margin of clypeus weakly convex and not distinctly separated from clypeus; length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum smooth, but with some crenulae medially and apically (fig. 128); epicnemial area smooth, but somewhat punctulate anteriorly; precoxal suture scarcely impressed, rugose-punctate medially and indistinctly punctate anteriorly and posteriorly (fig. 128); rest of mesopleuron smooth; metapleural flange large, lamelliform and truncate apically (fig. 128); metapleuron smooth, except for some carinae ventrally; notauli medium-sized, strongly crenulate (fig. 136); mesoscutal lobes smooth; surface of propodeum smooth, except for some indistinctly developed rugosity posteriorly, without carinae (fig. 128).

Wings. — Fore wing: r : 3-SR : SR1 = 10 : 17 : 74; SR1 curved anteriad; cu-a inclivous and apically curved basad (fig. 130); 1-CU1 : 2-CU1 = 1 : 10; 2-SR : 3-SR : r-m = ca. 14 : 17 : 10; 2A well developed (fig. 130); area basally of 2A remotely setose. Hind wing: r absent; SC + R1 and SR weakly curved.

Legs. — Hind coxa smooth; claws simple, long setose and with some bristly setae basally (fig. 133); length of femur, tibia, and basitarsus of hind leg 7.4, 11.5, and 10.8 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus; outer side of hind tibia rather spiny (fig. 137).

Metasoma. — Length of 1st tergite 3.0 times its apical width, its surface smooth, except for some punctulation; dorsal carinae of 1st tergite absent, except for a vague remnant basally (fig. 135); length of ovipositor sheath 0.07 times fore wing.

Colour. — Brownish-yellow; antenna (except main part of scapus and pedicellus), stemmaticum, hind leg and metasoma, blackish-brown, but 2nd tergite laterally, 3rd tergite laterally and apically, metasoma baso-ventrally, apex of hypopygium and ovipositor sheath, whitish-yellow; pterostigma, C + SC + R and R1 of fore wing, brown; wing membrane weakly infuscated.

Holotype in BM, London: "Type", "B.M., Type, Hym., 3.c.680". "*Zele australiensis* Nixon, holotype, ♀", "MacKay, Queensland, 1909—45", "MacKay, 2.94", "912". Total number of additional specimens examined: 27 ♀ and 19 ♂, all from Australia. Queensland: Bluff Range, nr. Biggenden; Mt. Crosby; Mt. Cootha; Mt. Tamborine; Brisbane. New South Wales: Woodford; Willowtree; 1 mi. W. Wombeyan Cayes; 2 mi. N. Boonoo Boonoo, nr. Tentifield; Mt. Brown. Western Australia: Drummonds Cove, nr. Geraldton; Jacup; 19 mi. ENE. Perth. Northern Territories: McArthur River, 14 km SW. Cape Crawford. Australian Capital Territory: Blundell's F.C.T.; Handmarsh Falls, at light; Canberra. Southern Australia: Cape Jervis. Victoria: Nowa Nowa; Mt. Hotham. Tasmania: Mt. Barrow; Coles Bay; Togari; Port Davey; Port Arthur (TC, BM, CNC, RMNH, CSIRO).

Variation: Length of ovipositor sheath 0.06—0.07 times fore wing; length of malar space 0.4—0.6 times basal width of mandible; length of fore wing 6.3—6.7 mm; length of 4th segment of labial palp 2.3—2.6 times 3rd segment; apices of hind tibial spurs of ♂ truncate and pigmented apically; middle of propodeum finely rugose or rather coarsely sculptured; wing membrane rather hyaline to dark brown; sometimes middle legs, propodeum and metanotum, blackish; 2nd and 3rd tergites often mainly whitish-yellow, except for a narrow blackish longitudinal stripe at middle of 2nd tergite, but exceptionally absent; head colour varies from mainly brownish-yellow to dark brown or black. The (in the genus *Homolobus*) unusual blackish/whitish colour markings may indicate that *australiensis* belongs to a mimetic complex of species. The same colour pattern occurs in *Homolobus* also in species from Malagasy, which are not closely related to *australiensis*.

Homolobus (Apatia) albipalpis (Granger) comb. nov.
(figs. 144—157)

Granger, 1949, Mém. Inst. scient. Madagascar 2A: 378, fig. 384 (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 221.

Redescribed after a ♀ from Ranomafana (Malagasy), length of body 4.4, of fore wing 4.6 mm.

Head. — Antennal segments 40, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 3.7 and 3.1 times their width, respectively, length of both penultimate segments 1.6 and 1.8 times their width; length of 4th segment of labial palp 4.0 times 3rd segment (fig. 154); length of maxillary palp 4.0 times height of head; inner sides of eyes weakly emarginate (fig. 151); dorsal length of eye 2.0 times temple; POL : ∅ ocellus : OOL = 9 : 9 : 12; frons rather flat, with some striae and punctulate laterally; vertex punctulate, rather flat; face weakly convex and punctate; clypeus convex, remotely punctate; apical margin of clypeus rather straight medially and not distinctly separated from clypeus (fig. 151); length of malar space 1.1 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum almost smooth dorsally and ventrally, medio-anteriorly crenulate and posteriorly

rugose (fig. 144); epicnemial area mainly smooth; precoxal suture absent, except for a shallow depression, weakly punctulate, as rest of mesopleuron; metapleural flange large, stout, rounded apically, bordered by a narrow carina; metapleuron smooth, but with some rugae ventrally; notauli deep and widely crenulate posteriorly, narrowed anteriad (fig. 157); mesoscutal lobes punctulate; anterior surface of propodeum mainly smooth, but posterior half weakly reticulate-rugose (fig. 144).

Wings. — Fore wing: r : 3-SR : SR1 = 11 : 12 : 78; SR1 straight; cu-a almost straight (fig. 147); 1-CU1 : 2-CU1 = 3 : 31; 2-SR : 3-SR : r-m = 17 : 12 : 11; 2A shortly developed (fig. 148); area basally of 2A mainly bare. Hind wing: r absent; SR straight; SC + R1 weakly curved (fig. 146).

Legs. — Hind coxa finely punctate and dorso-apically shortly striate; tarsal claws with a scarcely visible subapical prominence (figs. 152, 153), setose basally; length of femur, tibia, and basitarsus of hind leg 5.6, 9.8, and 7.2 times their width, respectively; length of spurs of hind tibia 0.7 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.3 times its apical width, somewhat narrowed apically, its surface smooth (fig. 156); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.11 times fore wing.

Colour. — Yellowish-brown; stemmaticum, metasoma (except for the whitish 2nd and 3rd segments and 1st sternite), black; 2nd and 3rd tergites yellowish-white, but apical margin of 3rd tergite narrowly blackish; 1st-3rd segments of labial palp, 1st and 2nd segments of maxillary palp, dark brown; 4th segment of labial palp and 3rd-6th segments of maxillary palp, whitish-yellow.

Redescribed after ♀ from Malagasy, Ranomafana, X.1938 (MNHN, Paris). Holotype in MNHN, Paris, ♂: "Madagascar, Ankaratra, Alt. 1800 m", "Muséum Paris, II.38, A. Seyrig", "Type", "*Zele albipalpis* Gr., B. Sigwalt". Antennal segments 47; length of malar space 1.4 times basal width of mandible; length of fore wing and of body both 6.4 mm; length of maxillary palp 1.5 times height of head; pronotum and propodeum somewhat more sculptured than in figured specimen; length of 1st tergite 2.7 times its apical width; apices of spurs of hind tibia sharp and hyaline; whole 3rd tergite whitish; 2nd and 3rd segments of labial palp whitish; head, all coxae, fore and middle tarsi, propleuron and pronotum ventrally, infuscated to dark brown; hind tarsus yellowish.

Additional specimens examined from Malagasy and Grande Comore, 8♀ and 1 ♂ (Malagasy: Mandraka; Manjakatampo; Ankaratra-Antsasbatana, sous forêt, 0—5 h, 1970 m; Sakavondro, 40 m, Fort Dauphin; Andranotobaka, 1400 m, Ambatolampy. Grande Comore: Convalescence, 1700 m; Nioumbadjoe, 505 m). Variation: Length of fore wing 4.1—7.2, of body 3.6—6.8 mm; length of ovipositor sheath 0.11—0.13 times fore wing; length of malar space 0.9—1.4 times basal width of mandible. Length of 4th segment of labial palp 4.0—5.0 times 3rd segment; length of 1st tergite 2.1—2.8 times its apical width; antennal segments 38—47; colour of 3rd tergite completely white to mainly black, palpi mainly white, yellowish, or wholly dark brown, except the 6th segment of maxillary palp (MNHN, RMNH, MAC).

Note. In addition I have examined an aberrant series of 5 melanistic ♀

specimens from Andranotobaka (Malagasy, 1400 m, Ambatolampy, MNHN, RMNH). The 2nd and 3rd tergites are mainly blackish, at most are the margins more or less whitish-yellow, the hind leg (except for the coxa and trochanter) and palpi are mainly dark brown, and length of malar space 1.0—1.2 times basal width of mandible. In the key they may run to *maculatus*, but *maculatus* differs by the colour, the finely sculptured propodeum, and the longer malar space.

This species may be confused with the other almost similarly coloured species from Malagasy, viz., *cingulatus* and *inopinus*. But the females of the latter two species have an antennal ridge, the inner hind claw concave basally and the precoxal suture more extensively sculptured. The males are less easy to separate, but the posteriorly scarcely sculptured precoxal suture, the mainly white 3rd tergite and usually whitish apical segments of the palpi of *albipalpis* may be sufficient to separate them from *cingulatus* and *inopinus*.

Homolobus (Apatia) truncator (Say) comb. nov.
(figs. 112—115, 158—168, 174—176, 178—190, 711, 879—881)

Say, 1828, Contrib. Maclur. Lyc. Philad. 2: 381 (as *Bracon*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 227.
Wesmael, 1835, Nouv. Mém. Acad. Brux. 9: 161 (*Phylax calcarator*). **Syn. nov.**
Cresson, 1872, Trans. Am. ent. Soc. 4: 178 (*Phylax melleus*). **Syn. nov.**
Viereck, 1905, Trans. Kans. Acad. Sci. 19: 279 (*Zele crassicalcaratus*). **Syn. nov.**
Bengtsson, 1918, Acta Univ. Lund. (2)14(32): 42, fig. 18 (*Phylacter fuscitarsis*). **Syn. nov.**
Enderlein, (1918) 1920, Arch. Naturgesch. 84A: 218, fig. 10 (*Zele unicolor*). **Syn. nov.**
Enderlein, (1918) 1920, id. 84A: 219 (*Apatia simillima*). **Syn. nov.**
Nixon, 1938, Bull. ent. Res. 29: 420, fig. 1d (*Zele chlorophthalma* (nec Spinola, 1808!). **Syn. nov.**
Papp, 1971, Acta zool. Acad. Sc. hung. 17: 53.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 230.
Čapek, 1975, Biológia 30: 819.
Tobias, 1976, Opr. Fauna SSSR 110: 131, fig. 39: 2—4.

Neotype, ♀, length of body 6.8, of fore wing 6.3 mm.

Head. — Antennal segments 50, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 3.2 and 2.8 times their width, respectively, penultimate segments 1.9 and 2.3 times their width (fig. 162); length of 4th segment of labial palp ca. 4 times 3rd segment (fig. 164); length of maxillary palp 1.3 times height of head; eyes weakly emarginate at the inner sides (fig. 165); dorsal length of eye 1.6 times temple; POL : ∅ ocellus : OOL = 12 : 13 : 16; frons almost flat, with some superficial striae near antennal sockets (fig. 163); vertex smooth, but with some microstriae near ocelli; face rather flat, superficially rugose below the antennal sockets and punctulate ventrally; clypeus rather flat, punctulate; apical margin of clypeus scarcely separated from clypeus, slightly convex medially (fig. 165); length of malar space 0.5 times basal width of mandible; mandible rather weakly twisted apically (fig. 165).

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum largely smooth, medially widely and posteriorly more narrowly crenulate (fig. 158); epicnemial area rugose-punctate; precoxal suture rather coarsely rugose-punctate (fig. 158); rest of mesopleuron smooth; metapleural flange rather large,

lamelliform, truncate apically and wide; metapleuron largely smooth, only rugose ventrally; notauli deep, rather widely crenulate (fig. 168); mesoscutal lobes smooth; surface of propodeum narrowly smooth anteriorly and with a short medial irregular carina, medially and posteriorly reticulate-rugose (fig. 158).

Wings. — Fore wing: r : 3-SR : SR1 = 8 : 11 : 52; SR1 somewhat curved anteriad (fig. 161); cu-a slightly inclivous and curved; 1-CU1 : 2-CU 1 = 2 : 21; 2-SR : 3-SR : r-m = 10 : 11 : 7; 2A mainly present as an only pigmented brownish stripe (fig. 161); area basally of 2A mainly bare. Hind wing: r absent; SR and SC + R1 weakly curved (fig. 161).

Legs. — Hind coxa smooth, except for some microsculpture (fig. 167); tarsal claws simple, setose basally, rather bristly (fig. 160); length of femur, tibia, and basitarsus of hind leg 6.0, 9.5, and 8.5 times their width, respectively; length of spurs of hind tibia 0.7 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 3.2 times its apical width, its surface rather superficially and irregularly punctate-rugose (fig. 166); dorsal carinae of 1st tergite weakly developed in basal half of tergite; length of ovipositor sheath 0.07 times fore wing.

Colour. — Brownish-yellow; stemmaticum black; flagellum of antenna dark brown; palpi and ovipositor sheath rather whitish-yellow.

Neotype in RMNH, Leiden: "U.S.A., Mich., Ann Arbor, 25—30.VIII.1976, Malaise-traps, C. van Achterberg".

Note. Males are very similar to the females, but the apices of the spurs of the hind tibia are truncate and pigmented apically (fig. 112). Known hosts of examined specimens belong to the Noctuidae (*Amathes smithii* (Snellen), *Porosagrotis orthogonia* (Morrison), and *P. tristicula* (Morrison)) and to the Geometridae (*Hypagyrtis piniata* (Packard), *Lycia zonaria* (Denis & Schiff.), and *Semiothisa bitactata* (Walker)).

Total number of specimens examined: 324 ♀ and 223 ♂. From the following localities in the New World: British Columbia (3 mi. E. Lytton, 800 ft), New Brunswick (Charlotte Co.), Nova Scotia (Mount Uniacke), Quebec (Kazubazua; Queen's Park, Aylmer; Wright; Kirks Ferry, light trap; Knigsmerg), Ontario (Chaffeys Locks; Bothwell; Ottawa; Chalk River; Rondeau Park; Leamington; Stratbury; Aylmer West, Malaise-trap), Saskatchewan (Beverley; 2 mi. Scout Lake, 2600 ft; Sceptoe), Alberta (Brooks, Lethbridge; Rotlaw; Duchess), Manitoba (2 mi. W. Stockton), Rhode Island (Westerly), New York (Ithaca, 6 Mile Creek; Oneonta; Otsego L.; Troy; Poughkeepsie; Farmingdale; Elmire), New Jersey (Moorestown), Michigan (George Res., Livingston Co.; Oakland Co.; Ann Arbor, Malaise-trap; Crystal Falls, Iron Co.), Connecticut (Canterbury), Kansas (Lawrence; Elwood; Douglas Co.), Kentucky (Golden Pond, Malaise-trap), Louisiana (Rapides Parish; Shreveport; Bayon Chicot, Evangeline Co.), Montana (Big Spring State Park; Williamsville, Malaise-trap), North Carolina (Black Mts.; Murfreesboro; Faison; Raleigh; Wake Co.), South Carolina (Columbia; Greenville; McClellanville; Table Rock; Wattacoo, Pickers Co.), Indiana (Posey Co., Murphy's Park, New Harmony), Arkansas (Hope), Maryland (Plummers Island; Prince Georges Co., Beltsville; Takoma Pk.; Patuxent Ref., Bowie;

Laurel), Virginia (Galax; Charlottesville), Missouri (Cp. Shelby, nr Hattiesburg; Mamon Co., Monroe City), Georgia (Forsyth; Waycross), Illinois (Wheaton, Dupage Co.); Nebraska (Valentine Refuge; Thomas Co., Neb. Nat. Forest, 2.5 mi. W. Halsey; 5 mi. NW. Harrison, 4400 ft), Colorado (Boulder; 6 mi. SE. Maybell, 6200 ft), Minnesota (Moorhead, Clay Co.; Big Fork), Wyoming (Douglass; Sweetwater Co., 11.5 mi. S. Eden; 6 mi. N. Sage), Tennessee (Knoxville), Oregon (Jackson Co., Mt. Ashland, 6500—7000 ft), Idaho (Butte Co., Crater of Moon), Florida (Subtrop. Exp. Sta., Homestead; Miami; Gainesville, Miachua Co., black light; Lake Placid; De Funiah Spring; Highlands Co., Archbold Biol. Stat.; Tall Timbers; Dunedin), California (Murray Kings Co., U.V. light trap; Walliston; Potrero, S.D. Co.; Julian; Cedar Pass, 6000 ft, Warner Mts., Modoc Co.; Cuyamaca; Andreas Cyn., Palm Springs; Orinda Village, Contra Costa Co., San Pablo Ridge, below Eureka Peak, 1000—1200 ft, oak-chaparral zone; 6 mi. E. Coalinga, Fresmo Co., U.V. light trap; Boyd Desert Res. Center, 4 mi. S. Palm Desert, Rw. Co.; 9 mi. W. Lone Pine, Inyo Co.; Kern Co.; San Ignacio L.; Catarina L.; Riverside Co., Agua Caliente, Ind. Res., Palm Canyon), Nevada (Austin Summit, Lander Co., at black & white light; Washoe Co., 21 mi. SE. Eagleville (Cal.); Golconda), New Mexico (Hatch, Raton, 6660 ft, Colfax Co.), Texas (San Antonio, at light; Brownwood; Kerville; Ft. Davis, Limpia Cyn., 5000 ft; Big Band N. P., Panther Junction, 3500—4000 ft), Arizona (Baboquivari Mts.; SW. Research Sta. of AMNH, Cave Creek Cyn., 5400 ft, Chiricahua Mts., Cochise Co.; Indian Wash nr Martinez Lake, Yuma Co., at light; Tuczon; Pima Co., Organ Pipe Cactus Nat. Mon., Williams Springs, flight trap; nr Roosevelt L.; Cochise Co., Pinery Cyn., Chiricahua Mts., Portal; Ajo; Huachuca Mts., Sierra Vista; 3 mi. W. Eager, 7100 ft, Pinon-Juniper zone; Ramsey Cyn., 6000 ft, 15 mi. S. Sierra Vista, Huachuca Mts.), Mexico (Vera Cruz, Fortin; Baja California, Norte, Diablito Cyn., East face Sierra San Pedro Martir, at light; id., Ensenada, at light; id., 7 mi. W. Las Arrastras de Arriola; id., Bajada, 8 mi. E. of Ojos Negros, at light; 20 mi. E. Guasave, Sin.; Santa Clara Cyn., 5 mi. W. Parrita, Chih.; 2 mi. W. Tlaxcala, Tlaxcala, swept from alfalfa; Chiap., Suchiapa; Oax., 4 mi. SE. Oaxaca; 20 mi. NNW. Obregon, Son., at light; Citlaltepetl, V. Cruz, 3000 ft; 10 mi. W. Vera Cruz; Sonora, Bahia San Carlos; id., 83 mi. W. Sonoyta; Sinaloa, 25 mi. E. of Los Mochis; Linares, N.L.; Teotihuacan, Pyr. Mex.; 15 km E. Sombrerete, Zac., at light; Fortin de las Flores, 3400 ft, Malaise-trap; Boquillas del Carmen, Coah., 1850 ft; 30 mi. SW. Tehuacan, Pue, 6800 ft; Chipinque Mesa, 5400 ft, nr. Monterrey, N.L.; nr. Jame, 7500 ft, 31 mi. SE. Saltillo, Coah.; 5 mi. S. Monterrey, N.L.; Dgo, 3 mi. E. El Salto, 8500 ft; Sin., 20 mi. E. Concordia, 3000 ft; Dgo, 24 mi. W. La Cuidad, 7000 ft; Dgo, 6 mi. S. Durango, 6100 ft; Oax., El Paredon; Lake Catemaco, Ver.; Dgo, 10 mi. W. El Salto, 9000 ft; Atlacomulco, 8500 ft; Orizaba, Ver.), El Salvador (Quezaltepeque, 500 m), Panama (Cerro Punta, Chiriqui, 6500 ft), Costa Rica (Monte Verde), Guatemala (Sacapulas, 4500 ft), Cuba (Soledad, Cienfuegos; Cuabitas, Stgo. de Cuba, Ote), and Venezuela (Cagua Edo, Aragua, at light) (RMNH, CAS, UCA, TC, USNM, AMNH, CNC, PAC, PAN, MSU, ANSP).

From the Palaearctic and Oriental regions: Finland (Dickursby), Sweden (Lund), Denmark (Emelsbu, Søderjylland; Sondbg; Charlottenlund), East

Germany (Thüringen; Berlin), West Germany (Rheingau, Gusenheim; Föhr; Moosburg; Würzburg; Garmisch, Ober-Bayern, Ettuler berg, ca. 700 m; id., Murnau, 700 m), Netherlands (Amsterdam; Kasteel Neercanne, St. Pietersberg, at light), Belgium (nr. Charleroy), Czechoslovakia (Karlătejn; Pavlovake Kopce, Bolni Věstonice), Poland (Gdansk), USSR (Moscow; Karagand, S. Tsj.-Arka, pojma, Taldi-Manaka; Karagandinsk obl., 20 km W. Karkaralins; Sveuciouiliym, Lit. SSR), Switzerland (Wallis), Austria (Süd-Tirol, San Martino di Castroza, 1444 m; Sansal Gebirge, 300—500 m, Styria; Nord-Tirol, Oberinntal, Kauns nr. Prutz, 1000—1400 m), France (Cestas, Gironde; Vallon Pont d'Arc, Ardèche; Grignon; Crimaud, Var), Jugoslavia (Hercegovina, Buna), Bulgaria (Mandrisa, Rodopi; Karamansi, Rodopi), Hungary (Crepel; Baranya-Megya, Nagyharsany), Romania (Cibinsgeb., Transsylv. Alp.; Dannehl, id.), Spain (15 km NW. Tarifa; Albaracia), Cyprus (Yermosoyia River; Skouili, Sapho Dist., nr. Limasol), Tunesia (Nefta), Turkey (Priene, Asia Minor), S. India (Shevaroy Hills, 4500 ft, Yercaud), Philippines (Baguio, Benguet), and Taiwan (Taihorinsho) (RMNH, MNHN, TC, CNC, WHC, UZM, ITZ, HC, ZMH, ZMA, TMA, IZP, ZSB, BM).

Notes. The interpretation of this enigmatic species has long remained uncertain, e.g., Muesebeck & Walkley (1951: 109) listed *truncator* as an "unrecognized species" in *Zele* auct. The original description is very short, but is sufficient for identification, despite the fact that the type is lost. The "much compressed, truncate" metasoma, combined with the "body pale honey-yellow, polished, impunctured" points to the genus *Homolobus* Foerster. The most commonly captured species of *Homolobus* in the faunal area wherein the type-locality is situated is *H. melleus* (Cresson, 1872), a junior synonym of *H. calcarator* (Wesmael, 1835). It is also the only species of this genus in the area that fits the original description, e.g., antenna fuscous, but honey-yellow at base (viz., scapus is yellowish), palpi whitish towards the tips (viz., the maxillary palp is often whitish apically), the propodeum "slightly punctured" (which is actually finely rugose, but in any case not areolated as in other species), and length of body, ca. 6 mm. Finally in the AMNH collection (New York) there is a damaged specimen with an old, handwritten label "*Zele* (*Bracon*) *truncatus* Say" (probably by Ashmead) which belongs to this species. For the fixation of this interpretation I have selected a neotype, which will be deposited in the RMNH-collection (Leiden). The original type-locality is "Indiana", while the neotype is from Ann Arbor, Michigan, but both are situated in the Carolinian faunal region.

The holotype of *Phylax calcarator* Wesmael, 1835, was collected nr. Charleroy, Belgium. According to the original description Wesmael had only one male at his disposal, but in the Wesmael collection four specimens with type-labels are present. Fortunately only one fits the original description, in possessing the back of the metasoma "entièrement d'un testacé comme le reste du corps" (Wesmael, 1835: 161). This specimen has been labelled holotype: the length of the body is 6.3, of fore wing 5.6 mm, antennal segments 43, length of malar space 0.6 times basal width of mandible; hind tibial spurs truncate apically, length of femur, tibia and basitarsus of hind leg 4.9, 9.8, and 8.0 times their width, respectively, and length of 1st tergite 2.9 times its apical width (KBIN, Brussels: "Coll. Wesmael", "1875", "*Phylax calcarator* mihi, ♂, det. C. Wesmael", "Type").

The lectotype of *Phylax melleus* Cresson, 1872 (ANSP, Philadelphia: "Tex.", "Type, No. 1763", "*Phylax melleus* Cress.") is damaged, viz., the metasoma is missing. The length of the fore wing is 6.5 mm, antennal segments 50, length of maxillary palp 1.2 times height of head, and femur, tibia, and basitarsus of hind leg 6.1, 10.5, and 9.5 times their width, respectively. There are two specimens in ANSP with the same printed locality-label, which have been labelled paralectotype.

The holotype of *Zele crassicalcaratus* Viereck, 1905 (SEM, Lawrence: "Aug.", "Douglas Co., Kansas, E. S. Tucker", "*Zele crassicalcaratus* Vier., Type", "617") is a typical male of *truncator* (figs. 174—176, 178—181). The metasoma, hind tibia and tarsus are absent, length of fore wing 5.3 mm, antennal segments 47, and length of hind femur 5.5 times its width.

Finally *Phylacter fuscitarsis* Bengtsson, 1918, and *Zele unicolor* Enderlein, 1920, have to be added to the synonyms of *truncator*, because no significant differences could be detected after a thorough study of the available material. In the Thomson Collection (Lund) are 7 specimens under *Phylacter chlorophthalmus* (sensu Thomson, nec Spinola), which are part of the type-series of *Phylacter fuscitarsis* Bengtsson, because in the original description the name *fuscitarsis* was proposed for the species interpreted by Thomson as *chlorophthalmus*. Therefore one ♀ (ZIL, Lund: "Ilsp, 9/7", "1977, 30") is herewith selected as lectotype of *Phylacter fuscitarsis* Bengtsson. The length of the fore wing is 5.7 mm, r : 2-SR : 3-SR : r-m = 10 : ca. 13 : 16 : ca. 9, and the telotarsi are somewhat infuscated. Paralectotypes are 3 ♀, 2 ♂, and one damaged specimen, of which the sex is unknown.

The examined type-series of *unicolor* (lectotype: figs. 112—115, 182—190) consists of 23 ♀ and 4 ♂. One ♀ is herewith selected as lectotype (PAN, Warsaw: "Costa Rica, H. Schmidt S.", "Type", "*Zele unicolor* Enderl., ♀, Type, Dr. Enderlein, det. 1918", "Mus. Zool. Polonicum, Warszawa, 12/45"), which is a quite normal specimen of *truncator*. Length of body 6.4, of fore wing 6.1 mm, length of malar space 0.6 times basal width of mandible, length of maxillary palp 1.1 times height of head, SR of hind wing weakly sinuate, length of femur, tibia, and basitarsus of hind leg 6.9, 10.3, and 8.8 times their width, respectively, length of 1st tergite 2.5 times its apical width, and length of ovipositor sheath 0.08 times fore wing. The examined holotype of *Apatia simillima* Enderlein, 1920 (chosen from the same series as *unicolor*) is also a *truncator*, but has as an additional feature the well developed notauli filled with glue (PAN, Warsaw).

Variation: length of body 5.8—8.1, of fore wing 5.3—8.2 mm; length of hind femur 4.9—7.3 times its width; length of 1st tergite 2.5—3.4 times its apical width; length of ovipositor sheath 0.06—0.08 times fore wing; antennal segments 44—54; length of maxillary palp 1.1—1.3 times height of head; length of malar space 0.5—0.7 times basal width of mandible; length of 4th segment of labial palp 4.0—5.5 times 3rd segment.

Homolobus (Apatia) rufithorax (Granger) comb. nov.
(figs. 191—203, 319, 320)

Granger, 1949, Mém. Inst. scient. Madagascar 2A: 377, 378, fig. 383 (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 226.

Lectotype, ♀, length of body 9.0, of fore wing 8.7 mm.

Head. — Antennal segments 50, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 3.8 and 3.4 times their width, respectively, both penultimate segments 2.0 and 2.4 times their width; length of 4th segment of labial palp 3.5 times 3rd segment; length of maxillary palp 1.2 times height of head; eyes distinctly emarginate (fig. 198); dorsal length of eye 2.0 times temple; POL : ø ocellus : OOL = 9 : 13 : 12; frons almost flat, with a weakly developed medial carina (fig. 199); vertex punctulate; face and clypeus rather flat, punctulate; apical margin of clypeus straight medially, not separated from the clypeus (fig. 198); length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum crenulate medially, rugose-punctate medio-ventrally, punctate dorsally, and rugose posteriorly (fig. 191); epicnemial area mainly rugose; precoxal suture widely reticulate-rugose, surrounding part of mesopleuron punctate; metapleural flange large, rounded and without carina apically; metapleuron weakly punctate dorsally, rugose ventrally; notauli narrowly crenulate anteriorly, more widely posteriorly, deep (fig. 201); mesoscutal lobes densely punctulate; surface of propodeum coarsely rugose-reticulate, without carinae (fig. 191).

Wings. — Fore wing: r : 3-SR : SR1 = 7 : 14 : 43; r wider than 3-SR; SR1 strongly curved towards R1 (fig. 196); cu-a slightly inclivous, almost straight, and shortly antefurcal; 2-M + CU1 : CU1 = 1 : 23; 2-SR : 3-SR : r-m = 11 : 14 : 7; 2A shortly developed; area basally of 2A remotely setose laterally (fig. 197). Hind wing: r absent; SR sinuate (fig. 196); SC + R1 moderately curved (fig. 194).

Legs. — Hind coxa weakly punctate; tarsal claws simple, brownish yellowish pectinate basally, except inner hind claw (figs. 202, 203); length of femur, tibia, and basitarsus of hind leg 6.6, 10.0, and 9.0 times their width, respectively; length of spurs of hind tibia 0.7 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 3.6 times its apical width, its surface weakly reticulate-rugose medially, mainly smooth laterally (fig. 320); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.04 times fore wing.

Colour. — Mesosoma, legs (but tibiae somewhat infuscated), 1st tergite (mainly), and 2nd tergite laterally, reddish-brown; pterostigma dark brown; 1st tergite medio-apically, 2nd tergite medially, 3rd and following segments mainly, blackish-brown; apical margins of tergites (except of 1st tergite) whitish-yellow; dorsal half of clypeus, face, vertex anteriorly, and eye margins, yellowish-white; remaining part of head and basal half of antenna, blackish-brown; apical half of antenna brown.

Lectotype in MNHN, Paris: "Bekily, Reg. Sud de l'Ile", "Muséum Paris, XI.36, A. Seyrig", "50", "*Zele rufithorax* Gr., B. Sigwalt". Lectotype herewith selected. From same locality 2 ♀ paralectotypes (MNHN). Additionally examined a ♀ from Malagasy (Rogez, Forêt cote est, I.31, A. Seyrig (MNHN)) with a type-label, which cannot be a type-specimen because it is not mentioned in the original description. Length of malar space 0.6 times basal width of mandible; antennal segments 49; only frons and vertex anteriorly whitish-yellow; face light reddish-brown; vein r of fore wing wider than 3-SR, length of 1st tergite 3.8 times its apical

width, mainly smooth and wholly reddish brown; margins of 2nd and 3rd tergites yellow; mesopleuron punctulate; length of fore wing 7.6 mm; length of 4th segment of labial palp 3.0 times 3rd segment; hind tarsus mainly dark brown.

Homolobus (Apatia) maculatus spec. nov.
(figs. 204—215, 283)

Holotype, ♀, length of body 5.7, of fore wing 5.6 mm.

Head. — Antennal segments 44, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 4.2 and 3.6 times their width, respectively, length of both penultimate segments 1.3 and 1.5 times their width (fig. 211); length of 4th segment of labial palp 3.5 times 3rd segment; length of maxillary palp 1.2 times height of head; eyes indistinctly emarginate (fig. 210); dorsal length of eye 2.1 times temple; POL : ∅ ocellus : OOL = 10 : 9 : 16; frons almost flat, medially mainly smooth, laterally coriaceous (fig. 213); vertex rather convex, coriaceous; face weakly punctate and convex; clypeus punctulate and with some lateral striae, convex; apical margin of clypeus straight medially, not differentiated from clypeus (fig. 210); length of malar space 1.3 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum mainly smooth dorsally, crenulate medially and rugose ventrally (fig. 204); epicnemial area weakly rugose; precoxal suture rather coarsely rugose-reticulate, posteriorly more punctate; rest of mesopleuron punctulate; metapleural flange round and wide apically, bordered by a rather narrow carina (fig. 204); notauli rather widely crenulate posteriorly (fig. 214); mesoscutal lobes punctulate; surface of propodeum narrowly smooth anteriorly and with a medium-sized medial carina, rest of propodeum finely reticulate-rugulose.

Wings. — Fore wing: r : 3-SR : SR1 = 10 : 7 : 45; r and 3-SR of equal width (fig. 206); SR1 almost straight; cu-a antefurcal, straight; 2-M + CU1 : CU1 = 1 : 19; 2-SR : 3-SR : r-m = 11 : 7 : 7; short part of 2A sclerotized (fig. 206); area basally of 2A mainly bare (fig. 208). Hind wing: r absent; SR straight; SC + R1 weakly curved (fig. 207).

Legs. — Hind coxa punctate and dorsally rugose (fig. 204); tarsal claws pectinate basally and with a rounded, tiny subapical prominence (fig. 212); length of femur, tibia, and basitarsus of hind leg 7.3, 10.8, and 9.2 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.6 times its apical width, its surface behind the spiracles reticulate-rugulose (fig. 215); dorsal carinae of 1st tergite absent except for a short basal remnant (fig. 215); length of ovipositor sheath 0.09 times fore wing.

Colour. — Yellowish-brown; apical half of antenna, vertex, stemmaticum, middle of frons, pronotum partly, margin of mesoscutum, propodeum, metanotum, 1st tergite mainly, base of 2nd tergite, apical margins of 3rd and 4th tergites, 5th—8th tergites, 5th sternite, hypopygium partly, and tarsi mainly, more or less blackish or dark brown; pterostigma brown; palpi slightly infuscated; wing

membrane weakly brownish; apical margins of 3rd and following tergites somewhat silvery.

Holotype in CNC, Ottawa: "N. Slope Mt. Elgon, Uganda, 2300 m, 17—26.x.i.1971, H.Falke". Paratypes: 8 ♀ and 4 ♂: 4 ♀, topotypic (CNC, RMNH); 1 ♂, "S. Tanganyika, Rungwe Mts., 2600 m, 5—10.xi.62 (allotype, CNC); 1 ♀, "Afr. Orient. Ang., Kenya", "Muséum Paris, Nanyuki, VI.32, A. Seyrig" (MNHN); 1 ♀, "Pietermaritzburg, XI—21—70, S. Africa, H & M. Townes" (TC); 1 ♂, "Mt. Elgon, 8000 ft, IV.9.76, Kenya, Ian Bampton" (TC); 1 ♂, "Mpendle, Natal, XII-3-70, S. Africa, H. & M. Townes" (RMNH); 1 ♀ and 1 ♂, "Kenya, Elgon Saw Mill, Mt. Elgon, Ver'est, (Camp II), 2470 m", "Muséum de Paris, Mission de l'Omo, C. Arambourg, P.-A. Chappuis & B. Jeannel, 1932—33" (MNHN); 1 ♀, "Kenya, Kitale, Uasin Gishu, 2100 m", "Muséum de Paris, Mission de l'Omo, C. Arambourg, P.-A. Chappuis & B. Jeannel, 1932—33" (RMNH).

Variation: Length of fore wing 4.6—5.6 mm; length of ovipositor sheath 0.09 times fore wing; antennal segments 43—45; length of 1st tergite 2.5—2.6 times its apical width; length of 4th segment of labial palp 3.2—3.7 times 3rd segment; length of malar space 1.2—1.6 times basal width of mandible; vein cu-a of fore wing antefurcal, interstitial, or shortly postfurcal; hind coxa sometimes only punctulate; females with at least apical third of metasoma blackish.

Notes. Male essentially as female, but tarsal prominence more reduced, scarcely visible at 80×; apices of hind tibial spurs sharp and hyaline apically. For blackish specimens from Malagasy, see note under *albipalpis*.

Homolobus (Apatia) alternipes spec. nov.
(figs. 216—230)

Holotype, ♀, length of body and of fore wing both 5.0 mm.

Head. — Antennal segments 38, 3rd segment 1.3 times 4th segment; length of 3rd and 4th segments 4.9 and 3.8 times their width, respectively, length of both penultimate segments 2.3 and 2.0 times their width (fig. 218); length of 4th segment of labial palp 4.0 times 3rd segment; length of maxillary palp 1.1 times height of head; eyes scarcely emarginate (fig. 229); length of eye 2.2 times temple; POL : ∅ ocellus : OOL = 5 : 5 : 6; vertex rather flat, rugose near eyes (fig. 227); frons rather flat, mainly smooth; face rather flat, punctate, and dorsally somewhat rugose; clypeus convex, weakly punctate; apical margin of clypeus straight medially, not differentiated from clypeus (fig. 229); length of malar space 0.7 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.5 times its height; side of pronotum crenulate-rugose medially and posteriorly, coarsely rugose ventrally, and dorsally narrowly punctulate (fig. 216); epicnemial area reticulate-rugose posteriorly; precoxal suture densely rugose-reticulate; mesopleuron above precoxal suture finely punctate; metapleural flange lamelliform, large, wide and rounded apically; metapleuron dorsally mainly smooth, reticulate-rugose ventrally (fig. 216); notauli

largely narrowly crenulate, apically wider and more reticulate-rugose (fig. 228); mesoscutal lobes densely punctulate; surface of propodeum coarsely reticulate-rugose, but anteriorly narrowly smooth, with a short medial carina.

Wings. — Fore wing: r : 3-SR : SR1 = 6 : 5 : 42; SR1 straight; cu-a straight, postfurcal; 1-CU1 : 2-CU1 = 2 : 16 ; 2-SR : 3-SR : r-m = 10 : 5 : 6; 2A shortly sclerotized basally; area basally of 2A mainly bare (fig. 221). Hind wing: r absent; SR straight; SC + R1 weakly curved (fig. 220).

Legs. — Hind coxa coarsely punctate-rugose dorsally, more punctulate laterally (fig. 223); tarsal claws slender, setose, with only a scarcely visible (at 80×) subapical prominence (figs. 225, 226); length of femur, tibia, and basitarsus of hind leg 5.8, 9.3, and 7.6 times their width, respectively; length of spurs of hind femur 0.6 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 2.6 times its apical width, its surface largely finely rugose, mediobasally and apically smooth (fig. 224); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.09 times fore wing.

Colour. — Mesosoma brownish-red; head, antenna, pterostigma, parastigma, wing veins, metasoma, and hind leg (except for the whitish trochanter and trochantellus), more or less dark brown; palpi, fore and middle coxae, all trochanters and trochantelli, tegulae, and (to a lesser degree) fore and middle femora, yellowish-white; margin of 2nd tergite, mandibles and anellus, yellowish; fore and middle tibiae and tarsi yellowish, but somewhat infuscated.

Holotype in MNHN, Paris: "Kenya, Nairobi, 1600 m", "Muséum Paris, VI.32, A. Seyrig". Paratypes: (2♂), 1 ♂, "Meru, VI.32", "Muséum Paris, Kenya, A. Seyrig" (allotype, MNHN). Length of malar space 0.8 times basal width of mandible; r : 3-SR = 10 : 7; antennal segments 39; apices of spurs of hind tibia sharp and hyaline; 1st tergite mainly smooth; pronotum remotely rugose; length of 4th segment of labial palp ca. 4.5 times 3rd segment; mesopleuron above precoxal suture punctulate; apical 0.4 of precoxal suture only punctulate; length of fore wing 4.4 mm; claws without prominence. Second paratype without head, 1 ♂, same labels as allotype (RMNH), pronotum only slightly punctate, precoxal suture mainly rugose-reticulate, and above precoxal suture punctate.

Homolobus (Apatia) priapus (Nixon) comb. nov.
(figs. 138—140, 231—239)

Nixon, 1938, Bull. ent. Res. 29: 418, 419, fig. 1b (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 225.

Holotype, ♀, length of body and of fore wing both 7.2 mm.

Head. — Antennal segments 48, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 3.7 and 3.1 times their width, respectively, length of both penultimate segments 2.0 and 2.3 times their width; length of 4th segment of labial palp ca. 4 times 3rd segment; length of maxillary palp 1.4 times height of head; eyes weakly emarginate (fig. 238); dorsal length of eye 2.3 times temple; POL : ∅ ocellus : OOL = 3 : 8 : 5; frons rather flat, anteriorly rugose; vertex punctate-

rugose, rather flat (fig. 138); face mainly flattened, largely rugose, laterally coriaceous; clypeus rather flat, punctulate; apical margin of clypeus straight medially, narrowly differentiated from clypeus (fig. 238); length of malar space 0.8 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum largely rugose, apico-dorsally and ventrally partly smooth (fig. 231); epicnemial area reticulate-rugose; precoxal suture weakly impressed, coarsely rugose-reticulate; rest of mesopleuron densely and finely punctate; metapleural flange large, with a rather narrow lamella apically (fig. 231); metapleuron punctate, but ventrally reticulate-rugose; notauli densely crenulate (fig. 239); mesoscutal lobes densely punctulate; surface of propodeum largely reticulate-rugose, posteriorly with a transverse carina, area behind it almost smooth, medial carina absent.

Wings. — Fore wing: r : 3-SR : SR1 = 8 : 9 : 43; SR1 straight; cu-a inclivous, but apically straight, postfurcal; 1-CU1 : 2-CU1 = 1 : 21; 2-SR : 3-SR : r-m = 11 : 9 : 8; 2A well developed basally (fig. 234); area basally of 2A mainly bare. Hind wing: r absent; SR straight; SC + R1 almost straight (fig. 232).

Legs. — Hind coxa finely and densely punctate, but postero-dorsally more coriaceous (fig. 139); tarsal claws setose, with a (at 80×) rather well visible, small prominence (fig. 237); length of femur, tibia, and basitarsus of hind leg 7.0, 10.5, and ca. 10 times their width, respectively; length of spurs of hind tibia 0.7 and 0.6 times basitarsus.

Metasoma. — Length of 1st tergite 3.2 times its apical width, its surface largely reticulate-rugose, basally smooth (fig. 140); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.08 times fore wing.

Colour. — Brownish-yellow; stemmaticum dark brown; apices of antennal segments of apical half of antenna, labial palp and ovipositor sheath, somewhat infuscated.

Holotype in BM, London: "Type", "B.M. Type Hym. 3. c. 679", "*Zele priapus* Nixon, ♀, Holotype", "Cape Province, Somerset East, 10-22.xii.1930", "S. Africa, R. E. Turner, Brit. Mus. 1931—37". Paratypes: 1 ♀ (topotypic) and 7 ♂ (Katberg and Ceres, both S. Africa). Additional specimens examined (33 ♀ and 18 ♂) are all from South Africa (Jonkershoek, nr. Stellenbosch; Garies, Cape; Grahamstown; Magoebaskloof, nr. Tzaneen; Kirstenbosch, nr. Cape Town; Deepwalls Forest, Knysma, C. P.) (TC, HC, RMNH). Variation: length of fore wing 6.2—8.1 mm; length of 4th segment of labial palp 3.3—5.5 times 3rd segment; length of malar space 0.7—1.0 times basal width of mandible; antennal segments 44—48; whole metasoma yellowish; only claws of male with a small subapical prominence; hind tibial spurs of male sharp and hyaline apically; vein cu-a of fore wing antefurcal, interstitial, or shortly postfurcal; length of vein r of fore wing equal to vein 3-SR, or shorter.

Homolobus (Apatia) lacteiceps spec. nov.
(figs. 240—254)

Holotype, ♀, length of body 8.0, of fore wing 7.9 mm.

Head. — Antennal segments 49, 3rd segment 1.3 times 4th segment; length of 3rd and 4th segments 4.0 and 3.2 times their width, respectively, length of both penultimate segments 2.1 and 2.7 times their width; length of 4th segment of labial palp 2.4 times 3rd segment; length of maxillary palp 1.3 times height of head; eyes weakly emarginate (fig. 245); dorsal length of eye 2.6 times temple; POL : ∅ ocellus : OOL = 7 : 11 : 7; frons smooth, except for some lateral striae, rather flat medially, convex laterally; vertex rather flat and smooth (fig. 242); face rather flat, largely punctulate, dorsally weakly rugulose; clypeus convex, punctulate; apical margin of clypeus straight medially, not differentiated from clypeus (fig. 245); length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum largely smooth, medially and posteriorly crenulate-rugose (fig. 240); epicnemial area almost smooth anteriorly, reticulate-rugulose posteriorly; precoxal suture largely reticulate-rugulose, anteriorly and posteriorly only indistinctly sculptured (fig. 240); rest of mesopleuron punctulate; metapleural flange small, with a narrow rounded carina apically (fig. 240); metapleuron medially smooth, anteriorly crenulate, and ventrally rugose; notauli narrowly crenulate (fig. 250); mesoscutal lobes punctulate; surface of propodeum reticulate-rugose, laterally with some more coarse rugae, medial and transverse carinae absent.

Wings. — Fore wing: r : 3-SR : SR1 = 8 : 11 : 41; SR1 straight; cu-a strongly inclivous, slightly bent basad apically (fig. 243), postfurcal; 1-CU1 : 2-CU1 = 5 : 32; 2-SR : 3-SR : r-m = 20 : 22 : 11; 2A unsclerotized, only completely pigmented (fig. 243); area basally of 2A setose (fig. 247). Hind wing: r absent; SR weakly curved basally, strongly sinuate submedially; constriction of marginal cell distad from its middle (fig. 243); SC+R1 distinctly curved (fig. 254); 2-SC+R subquadrate.

Legs. — Hind coxa in dorso-apical half striate, rest punctulate (fig. 240); tarsal claws simple, yellowish pectinate basally (figs. 251, 252); length of femur, tibia, and basitarsus of hind leg 6.0, 10.0, and 8.8 times their width, respectively; length of spurs of hind tibia 0.6 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 2.7 times its apical width, its surface anteriorly mainly smooth, posteriorly rugose, and medially finely rugulose (fig. 253); dorsal carinae of 1st tergite absent, except for a faint trace anteriorly; exserted ovipositor longer than 1.5 times length of 1st tergite (fig. 240); length of ovipositor sheath 0.25 times fore wing.

Colour. — Brownish-yellow; basal third of antenna and most wing veins, dark brown; stemmaticum blackish, rest of head whitish.

Holotype in TC, Ann Arbor: "Zika Forest, Uganda, VIII.19.'63, G. Lancaster". Paratypes: (6 ♀ and 1 ♂), all from Zika Forest, Uganda (1♂ (allotype), 23.viii.1963 (TC); 2 ♀, 21.viii.1963; 2 ♀ (Mengo), 18.x.1963; 2 ♀ (Mengo, Entebbe), 13.iv.1964) (TC, RMNH). Variation: hind tibial spurs of male narrowly truncate and pigmented apically; length of ovipositor sheath 0.22—0.26 times fore wing; length of 4th segment of labial palp 2.2—2.4 times 3rd segment; antennal segments 48—52; length of fore wing 5.8—9.6 mm; length of malar space 0.5—0.6 times basal width of mandible; area basally of 2A sometimes rather bare; middle lobe of

mesoscutum punctate or punctulate; occiput sometimes with a dark bronze patch behind the stemmaticum.

Homolobus (Apatia) pulchricornis (Nixon) comb. nov.
(figs. 141—143, 255—262, 279—282)

Nixon, 1938, Bull. ent. Res. 29: 420, 421, fig. 1a (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 225.

Holotype, ♂, length of body 8.3, of fore wing 7.8 mm.

Head. — Remaining antennal segments 6, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 3.8 and 3.4 times their width, respectively; length of 4th segment of labial palp ca. 2.5 times 3rd segment; length of maxillary palp 1.3 times height of head; eyes rather emarginate (fig. 261); dorsal length of eye 1.8 times temple; POL : ∅ ocellus : OOL = 5 : 7 : 6; frons almost flat, smooth; vertex flat, indistinctly coriaceous-punctulate (fig. 143); face rather flat, weakly and finely punctulate-rugose medially; clypeus flattened, sparsely punctulate; apical margin of clypeus straight medially, not well differentiated from clypeus (fig. 261); length of malar space 0.6 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum rugose, dorsally and medio-ventrally smooth (fig. 255); epicnemial area crenulate anteriorly, almost smooth dorsally; precoxal suture rather coarsely reticulate-rugose; rest of mesopleuron somewhat superficially punctulate; metapleural flange rather large, lamelliform, rounded apically (fig. 255); metapleuron remotely punctate, only ventrally rugose; notauli densely crenulate (fig. 262); middle lobe of mesoscutum densely and finely punctate, lateral lobes indistinctly punctulate; surface of propodeum rather finely rugose, only anteriorly smooth (except medially), carinae absent.

Wings. — Fore wing: r : 3-SR : SR1 = 8 : 12 : 51; SR1 curved towards R1; cu-a inclivous, postfurcal; 1-CU1 : 2-CU1 = 4 : 20; 2-SR : 3-SR : r-m = 13 : 12 : 7; 2A unsclerotized, only as a pigmented stripe (fig. 258); area basally of 2A remotely and sparsely setose. Hind wing: r absent; SR distinctly curved basally and sinuate medially; marginal cell constricted in front of middle of cell (fig. 258); 2-SC+R subquadrate; SC+R1 curved (fig. 259).

Legs. — Hind coxa mainly finely punctate-rugose, laterally almost smooth (fig. 141); tarsal claws simple, yellowish pectinate basally (fig. 260); length of femur, tibia, and basitarsus of hind leg 6.0, 10.3, and 8.8 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus, roundly truncate and pigmented apically (fig. 256).

Metasoma. — Length of 1st tergite 2.8 times its apical width, its surface finely and densely reticulate-rugose (fig. 142); dorsal carinae of 1st tergite absent.

Colour. — Brownish-yellow; stemmaticum, mesoscutal lobes partly, and antenna (as far as present), more or less dark brown; behind stemmaticum a faint, somewhat darker patch; pterostigma light yellowish.

Holotype in BM, London: "Type", "B.M. Type Hym. 3.c.681", "*Zele*

pulchricornis Nixon, 1938, Type, ♂", "1938/18", "Port St. John, Pondoland, July 10—31, 1923", "S. Africa, R.E. Turner, Brit. Mus., 1923—398". One further specimen examined (♀, TC, allotype, "Gillitts, nr. Durban, XII-1-70, So. Africa, H. & M. Townes") on which the following addition is based. Antennal segments 47, length of both penultimate segments 2.1 and 2.5 times their width; length of 4th labial palp segment 1.9 times 3rd segment; length of malar space 0.6 times basal width of mandible; length of fore wing 9.1 mm; length of ovipositor sheath 0.14 times fore wing, slender, light yellowish; exserted ovipositor slightly longer than 1st tergite (fig. 280); length of 1st tergite 2.7 times its apical width, its surface finely and densely rugulose; antenna yellowish, except for the eight dark brown basal segments; 2-SC + R shortly transverse (fig. 279); mesoscutum darkened anteriorly; mesoscutum densely and finely punctate; face, frons and vertex light yellowish.

Homolobus (Apatia) huddlestoni spec. nov.
(figs. 263—277)

Holotype, ♀, length of body and of fore wing both 7.5 mm.

Head. — Apex of antenna missing, remaining segments 24, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 3.5 and 2.9 times their width, respectively; length of 4th segment of labial palp 1.8 times 3rd segment; length of maxillary palp 1.1 times height of head; inner sides of eyes moderately emarginate (fig. 270); dorsal length of eye 2.6 times temple; POL : ∅ ocellus : OOL = 5 : 7 : 3; frons rather flat, striate (fig. 270); vertex narrow, concave near eyes, microsculptured (fig. 275); face rather flat, dorsal half transversely and finely striate, ventrally punctulate; clypeus rather flat, punctulate; apical margin of clypeus straight medially, not differentiated (fig. 270); length of malar space 0.7 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum crenulate medially and apically, punctate dorsally, and mainly smooth ventrally; epicnemial area reticulate-rugulose; precoxal suture reticulate-rugulose, weakly impressed; metapleural flange large, rounded and lamelliform apically (fig. 263); metapleuron almost smooth, only ventrally with some rugae; notauli almost smooth anteriorly, crenulate-rugose posteriorly (fig. 274); mesoscutal lobes punctulate; surface of propodeum densely and finely rugulose (fig. 263), without carinae.

Wings. — Fore wing: r : 3-SR : SR1 = 13 : 17 : 81; SR1 weakly curved towards R1; cu-a inclivous, postfurcal; 1-CU1 : 2-CU1 = 1 : 11; 2-SR : 3-SR : r-m = 18 : 17 : 10; 2A shortly sclerotized basally (fig. 266); area basally of 2A mainly remotely setose (fig. 276). Hind wing: r absent; 2-SC + R quadrate; SC + R1 almost straight (fig. 267); SR weakly sinuate (fig. 266).

Legs. — Hind coxa finely punctate-reticulate dorsally (fig. 269); tarsal claws simple, and basally rather indistinctly yellowish pectinate, but inner hind claw only setose (fig. 268); length of femur, tibia, and basitarsus of hind leg 5.3, 8.6, and 7.6 times their width, respectively; length of spurs of hind leg 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.0 times its apical width, robust (fig. 271), its surface finely and densely rugulose and apically more striate; dorsal carinae of 1st tergite absent, except for a weak basal remnant; length of ovipositor sheath 0.07 times fore wing.

Colour. — Brownish-yellow; stemmaticum blackish; flagellum and stripe on outer side of scapus, brownish; pterostigma yellowish.

Holotype in BM, London: "Tanganyika, Ilonca, 1.10.1962, I: A. D. Robertson", "Ex pupa *Euproctis sanguiguttata*", "*Zele* sp., R. D. Eady det. 1964".

The note that it emerged from the pupa of the host needs to be checked. Paratypes: (8♀ and 7 ♂), 3 ♂ (one allotype, BM): "E.A. Forest Insect Survey, J. C. M. Gardner, Tanganyika, Mbulu, ex larva *Euproctis fasciata* Wlk., No. 1238", "R. 662, 2.7.54" (BM, RMNH); 1 ♀ "Ukiriguru T.T., Castor, 29.III.1958, J. A. Robertson, Y. 129", "*Zele* sp. nr. *chlorophthalmus* Nees, R. D. Eady, det. 1959" (BM); 1 ♀, "Mtwapa, Kenya, Date 10.8.1971, No. 10718, B. R. Adams Coll., ex larvae of PC 6599" (BM); 1 ♂, "S.Rhodesia, Fort Victoria, IV.1957, Min. Agric.", "Ex larva of Lepidopt. No. 8007", "Larva No. 8007 = *Euproctis rubricosta* Fawcett" (BM); 1 ♀, topotypic (BM); 1 ♀, "Jinja, Uganda, 26.II.1909, C. C. Gowden No. 3" (RMNH); 1 ♀, "Uganda, Kampala, 5.x.1929, G. L. R. Hancock, ex *Arctornis rubricosta* on cvHorn (?)", "0356", "*Zele* sp. n., Holotype, ♀, R. D. Eady, det. 1970" (RMNH); 1 ♀, "Entebbe, Mengo, V.11'64, Uganda, G. A. Lancaster" (TC); 2 ♂, "Madagascar, Bekily, Reg. Sud de l'Ile", "Muséum Paris, IX.36, A. Seyrig" (MNHN); 1 ♂, "Madagasc.: Fort Dauphin, A. Seyrig" (MAC); 1 ♀, "Coll. Mus. Congo, Tanganika: Kamena, 1400 m (Riv. Kinga), H. Bomans, I.1958" (MAC); 1 ♀, "Musée du Congo, Kibali-Ituri: Geti, 1934, Ch. Scops" (RMNH). Variation: length of fore wing 5.3—6.8 mm; antennal segments 42 or 43; length of both penultimate segments in figured apex of antenna (fig. 264) 1.6 and 1.9 times their width; length of 4th segment of labial palp 1.7—2.0 times 3rd segment; length of malar space 0.5—0.7 times basal width of mandible; length of hind femur 4.6—5.8 times its width, robust; hind tibial spurs of male sharp and hyaline apically (figs. 272, 273); vein 2-SC + R quadrate or higher than wide; length of 1st tergite 1.7—2.2 times its apical width; length of ovipositor sheath 0.04—0.08 times fore wing.

Notes. The hosts of this new species seems to be restricted to the Lymantriidae (Lepidoptera), which is an aberrant choice within the genus *Homolobus*.

It is a real pleasure to dedicate this species to Mr. T. Huddleston (London); without his spontaneous assistance this revision (and others) would be far less complete.

Homolobus (Apatia) ophioninus (Vachal) comb. nov.
(figs. 278, 287—301)

Vachal, 1907, Revue Ent. 26: 122 (as *Meteorus*).
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 83.

Holotype, ♀, length of body 5.7, of fore wing 6.2 mm.

Head. — Antennal segments 46, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 3.4 and 2.8 times their width, respectively, length of both penultimate segments 1.6 and 2.0 times their width; length of 4th segment of labial palp 2.8 times 3rd segment; length of maxillary palp equal to height of head; eyes weakly emarginate (fig. 301); dorsal length of eye 2.3 times temple; POL : ∅ ocellus : OOL = 8 : 10 : 9; frons flat, largely rugulose, medially mainly smooth (fig. 299); vertex convex, somewhat coriaceous; face rather flat, dorsally shortly transversely rugulose and punctate, ventrally punctulate (fig. 301); clypeus rather convex, punctulate; apical margin of clypeus almost straight medially, not differentiated from clypeus; length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.5 times its height; side of pronotum dorsally and ventrally smooth, medially and posteriorly crenulate-rugose (fig. 287); epicnemial area finely reticulate-rugose as main part of precoxal suture, posterior third of precoxal suture only punctate and rather flat; rest of mesopleuron indistinctly punctulate; metapleural flange rather small, rounded and lamelliform apically (fig. 287); metapleuron largely smooth, ventrally reticulate-rugose; posteriorly notauli closely crenulate (fig. 300), anteriorly narrow and almost smooth; surface of propodeum smooth anteriorly, rest mainly superficially transversely rugulose-coriaceous; medial carina of propodeum shortly developed anteriorly.

Wings. — Fore wing: r : 3-SR : SR1 = 9 : 18 : 77; SR1 rather curved towards R1 (fig. 289); cu-a inclivous, postfurcal, somewhat curved basad apically; 1-CU1 : 2-CU1 = 2 : 35; 2-SR : 3-SR : r-m = 15 : 18 : 11; 2A distinctly sclerotized basally (fig. 288); area basally of 2A sparsely setose (less than in figured specimen, fig. 288). Hind wing: r absent; 2-SC + R transverse (fig. 289); basally SR less sclerotized than 1r-m, weakly sinuate; SC + R1 rather straight (fig. 290).

Legs. — Hind coxa mainly smooth, somewhat punctulate (but in figured specimen finely reticulate-rugose dorsally, fig. 291); tarsal claws simple, only basally indistinctly yellowish pectinate (figs. 294, 295); length of femur, tibia, and basitarsus of hind leg 6.5, 10.5, and 9.0 times their width, respectively; length of spurs of hind tibia 0.7 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.4 times its apical width, its surface mainly smooth, only posteriorly somewhat pimply-rugose (cf. fig. 298); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.07 times fore wing, rather slender.

Colour. — Brownish-yellow; antenna apically, and outer side of scapus, slightly infuscated; pterostigma (rather light) brown; stemmaticum blackish; wing membrane subhyaline.

Holotype in MNHN, Paris: "Don de Mme Jaubert", "Muséum Paris, 1939, Capit Quod", "G. *Meteorus* sp. *ophioninus* Vach., ♀, Usumia". The type originates from New Caledonia.

Specimens additionally examined: 100 ♀ and 42 ♂. From the Australian region: Australia: New South Wales (Narrabri; Maitland; Willowtree; 12 mi. NW. Milton), Western Australia (Old Doongan; 10 mi. W. Mellewa; Yallingup; Millstream; S. Coolgardie; 10 mi. S. Geraldton; 10 mi. W. Eucla; 5 mi. NW.

Augusta; Wongan Hills; 13 mi. NEE. Caiguna; 21 mi. NE. Fraser Range; 19 mi. NE. Mundrbilla), Southern Australia (9 mi. E. Cook; Mambray Creek; Leigh Co.; 35 mi. ESE. Morgan; 5 mi. S. Mungewarrie Sta.; 35 mi. E. Ceduna; Old Alton Downs, Simpson Desert; Goyder Lagoon, Waterhole; 10 mi. ESE. Koonalda), South Western Australia (Lake Magenta, at flowers of *Eucalyptus*), Australian Capital Territory (2 mi. E. Mt. Coree; Canberra), Northern Territories (Tempe Downs; 36 km SW. Borroloola). New Caledonia (Noumea). Norfolk Islands (Burnt Pine, 370 ft; Duncombe Bay, 300 ft; J. E. Road, 200 ft) (RMNH, CSIRO, CNC, BM, CAS, BPBM). From the Afrotropical and S. Palaearctic regions: Persia (Beshire (? = Beshneh, S. Iran)), Ethiopia (Addis-Abbeba; Haut-Aduache, Endessa; Karssa; Debra Zeit, 7200 ft), Kenya (S.W. Elgon, 6700 ft (specimen figured); Naivasha; Nairobi; Muguga; Mau Escarpment, Molo, 2420 m; Mt. Kenya, West side, lower zone, Ngaré Rungai, prairie river, 2000 m; Wa-Kikuyu, Wambogo, 1750 m; Elgon Saw Mill, Mt. Elgon, 2470 m; Mt. Elgon, 2100 m; Meru), Tanzania (Kilimandjaro, Kibonoto culture zone; id., Himo River, 1000 m, lower zone), Malagasy (Ftanaransoa, Plateau Central; Bekily, Reg. Sud de l'Ile; Tananarive; Banian, 70 m, Ankazoabo; Périnet; Andronotobaka, 1400 m, Ambatolampy; Montagne d'Ambre, Les Roussettes, 1100 m; Ankàsoka, 1130 m, Route Lakete; Ankaratra, 1800 m; La Mandraka; Antsirabé), Ruanda (Nyabikenke, Nyanza Terr., 1700 m; Sabiro, 1300 m), Zaire (Lomani, Kaniama; Ituri, Blukwa; Lualaba, N'Zilo, N. Kolwezi, 1400 m; Kolwezi, Mulando; Lubumbashi), Zambia (Welsley), and Rhodesia (Marandellas) (BM, MNHN, ZSB, RMNH, MAC, TC, TMA, CNC, NR). Variation: Length of fore wing 5.8—9.0 mm; antennal segments 45—51; length of malar space 0.3—0.7 times basal width of mandible; length of hind femur 5.0—6.9 times its width; spurs of hind tibia of male truncate and pigmented apically (figs. 296, 297); length of 4th segment of labial palp 1.8—2.8 times 3rd segment; length of 1st tergite 1.9—2.5 times its apical width; length of ovipositor sheath 0.05—0.08 times fore wing; colour of pterostigma varies from yellowish-brown to more or less dark brown; sometimes mesosoma with dark patches (especially at the middle of the mesoscutal lobes); 2nd tergite rather whitish laterally; sometimes mesosoma with dark patches (especially at the middle of the mesoscutal lobes); metasoma partly, apex of hind femur, and main part of hind tibia and tarsus sometimes infuscated; vein 2-SC + R of hind wing shortly transverse. Cocoon white and thin.

Notes. This species is closely related to *australiensis,* which differs mainly by the presence of the black-and-white pattern of the metasoma. Known hosts of reared specimens are *Spodoptera exempta* Walker and *Agrotis segetum* (Denis & Schiff.), both belonging to the Noctuidae (Lepidoptera).

Homolobus (Apatia) truncatoides spec. nov.
(figs. 302—314, 324—326)

Holotype, ♀, length of body 5.2, of fore wing 5.0 mm.

Head. — Antennal segments 42, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 3.2 and 2.8 times their width, respectively, length of both penultimate segments 1.7 and 2.0 times their width; length of 4th segment of labial

palp 1.8 times 3rd segment; length of maxillary palp equal to height of head; eye weakly emarginate (fig. 311); dorsal length of eye 2.1 times temple; POL : ∅ ocellus : OOL = 12 : 10 : 13; frons mainly flat and smooth, only behind antennal sockets some sculpture (fig. 312); vertex convex, smooth; face rather flat, transversely rugulose-punctulate (fig. 311); clypeus rather convex, punctate; apical margin of clypeus straight medially, not differentiated from clypeus; length of malar space 0.9 times basal width of mandible; upper condyli of mandibles distinctly below lower level of eyes (fig. 311).

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum smooth, but medially crenulate and posteriorly reticulate-rugose (fig. 302); epicnemial area and precoxal suture densely reticulate-rugose; rest of mesopleuron smooth, except for some punctures near the pleural suture; metapleural flange medium-sized, rounded and with a narrow carina apically (fig. 302); metapleuron smooth, only ventrally rugose; notauli crenulate (fig. 325); mesoscutal lobes weakly punctulate; surface of propodeum densely and rather finely reticulate-rugose, except for a narrow anterior part smooth and with a short medial carina anteriorly.

Wings. — Fore wing: r : 3-SR : SR1 = 6 : 10 : 47; SR1 almost straight, but slightly curved (fig. 306); cu-a weakly inclivous, postfurcal; 1-CU1 : 2-CU1 = 6 : 37; 2-SR : 3-SR : r-m = 10 : 10 : 6; 2A sclerotized basally (fig. 306); area basally of 2A sparsely setose (fig. 304). Hind wing: r absent; SR weakly sinuate, scarcely sclerotized (fig. 306); 2-SC + R transverse; SC + R1 rather short and weakly curved (fig. 307).

Legs. — Hind coxa largely punctulate, dorsally mainly rugulose; tarsal claws simple, only yellowish setose, outer hind claw rather spiny setose (figs. 313, 314); length of femur, tibia and basitarsus of hind leg 7.1, 10.2, and 8.8 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 3.2 times its apical width, its surface longitudinally reticulate-rugose (fig. 326); dorsal carinae of 1st tergite absent, except for a weak remnant; length of ovipositor sheath 0.04 times fore wing; sheath truncate apically (fig. 303).

Colour. — Brownish-yellow; antenna (except inner side of scapus, pedicellus, and anellus), all tarsi, middle of mesoscutal lobes, metanotum partly, 1st and 2nd tergite, more or less brownish infuscated; wing membrane hyaline; pterostigma light brown.

Holotype in ZMB, Berlin: "Egypten, Schmiedekn. S., 1897", "Heliopolis bei Cairo", "28642", "*Phylacter nigricornis* Walk., ♀♂" (in Schmiedeknecht's handwriting), "Zool, Mus. Berlin". Paratypes: (40 ♀ and 30 ♂) from the Afrotropical region: 1 ♂, "Kenton-on-Sea, South Africa, XII.1—11.1970, Rex Jubb" (TC); 1 ♂, "S. Africa, R. E. Turner, Brit. Mus. 1922—97", "Mossel Bay, Cape Province, Febr. 1922" (BM); 1 ♀, id., 15.iii—20.iv.1932 (RMNH); 1 ♀, id., Febr. 1922 (BM); 1 ♀, "Madagascar, Tananarive, 6—13.x.1970", "Coll. P. Hammond, B.M. 1970-603" (BM); 1 ♀, "Nyassa See, Langenburg, VI.98, Fülleborn S.", "*Zele nigricornis* Walk." (in Szépligeti's handwriting), "Zool. Mus. Berlin" (ZMB); 1 ♂, "Coll. Mus. Congo, Madagascar: Ankaratra, IV-1944, A.

Seyrig" (MAC); 2 ♂, "Muséum Paris, Afrique occidentale, Konakry, A. Chevalier, 1909", "Décembre" (MNHN, RMNH); 1 ♀, "Ilora, Nigeria, VIII'74, W. State, J. T. Medler" (TC); 2 ♀, "Grahamstown, South Africa, I.17—31.71 & II.15—22'71, Fred Gess" (TC, RMNH); 1 ♂, St. Lucia Estuary, XI.10, 70, So. Africa, H. & M. Townes" (TC); 1 ♀, "Kenton-on-Sea, South Africa, XII.1.11, 1970 (RMNH); 1 ♂, id., January 1971 (TC); 2 ♀, id., II.1—19, 1971 (TC); 1 ♂, id., XI.15—30, 1970 (RMNH); 2 ♀, id., XI.1—14, 1970 (TC, RMNH); 2 ♀, id., March 1971 (TC); 1 ♀, id., April 1971 (TC); 2 ♀, id., June 1971 (TC); 1 ♀, "Madagascar, Antsirabé", "Muséum Paris, XI.36, A. Seyrig", "*Zele chlorophthalmus* Nees, B. Sigwalt" (RMNH); 1 ♀, "Madagascar, Ankaratra, Alt. 1800 (m)", "Muséum Paris, II.38, A. Seyrig", "48", "*Zele chlorophthalmus* Nees, B. Sigwalt" (MNHN); 1 ♀, "Muséum Paris, Madagascar, Région du Sud-est, Forêt Dauphin, Ch. Allaud, 1901", "*Zele nigricornis* Walker" (in Szépligeti's handwriting), "*Zele chlorophthalmus* Nees, B. Sigwalt" (MNHN); 2 ♀ and 1 ♂, "Muséum Paris, Zambéze, Nova Choupanga, près Chemba, P. Lesne, 1929", "*Zele chlorophthalmus* Nees, B. Sigwalt"; 1 ♂, "Muséum Paris, Madagascar, Tananarive, R. Decary, 1921", "Février", "*Zele chlorophthalmus* Nees, B. Sigwalt" (MNHN); 1 ♀, "Muséum Paris, Ethiopie Mérid., Haut-Aduache, Endessa, Maurice de Rothschild, 1905", "*Zele nigricornis* Walk., V. Szépligeti, det. 1907" (TMA); 1 ♀, "Madagascar, Perinet, XI-7-1959", "E. S. Ross Collector" (CAS)). From the South Palaearctic region: 3 ♂, "Aegyptus, Schmkn., 97", "Memphis", "*Zele nigricornis* Walk., det. Szépligeti (TMA, RMNH); 1 ♂, "Alexandria, Egypt", "*Zele chlorophthalmus* (Nees), det. P. Marsh" (USNM); 1 ♂, "Spain, Almeria, El Alquinan, 3 March 1966, Leif Lyneborg" (UZM); 4 ♀ and 4 ♂, "Museum Leiden, Bär, Blöte, De Jong & Osse, Estepona, 3.X.1952, Spanje" (RMNH); 2 ♀ and 2 ♂, id., but 30 km ZW. Malaga, 4.X.1952 (RMNH); 1 ♂, id., but from Jerez de la Frontera, 22.IX.1952 (RMNH); 1 ♂, "Islas Canarias, Tenerife, J. Wolschrijn", "Los Cristianos, 13/26.ii.1977" (RMNH); 1 ♂, "Almunecar, Granada Prov., Spain, 0—30 m, J. R. Vockeroth, 16.VII.1960" (CNC); 1 ♂, "nr. Limassol, XI.21'46, Cyprus Mavroumoustakis" (TC); 1 ♀ and 2 ♂, "Cyprus, Yermasovia R., 25.XI.66, 4.XI.1967, and 12.V.1966, respectively, Mavroustakis" (CNC, RMNH); 1 ♂, Italy, "Palermo, XI.63" (TC); 2 ♀ and 1 ♂ from Iraq: "Loc. Hindiya, 31/10/1956", "Host (on) *Beta,* Coll. S. Alyasiri", "*Zele* cf. ♀ *calcarator* ♀", "8/11/195.", "Host (on) sugar beet, Coll. D. Ahmad", "*Zele* cf. *calcarator*" (HC), and "Iraq, Diwanyye, 12-9-1954, light trap", "*Zele* cf. *calcarator* ♂" (HC); 1 ♀ and 1 ♂, "El Riyadh; Saudi Arabia, 9.X.1959, E. Diehl" (CNC, RMNH)). And from the Oriental Region: 1 ♀, "1400 ft, Coimbatore, South India, XI.1966, P. S. Nathan" (CNC); 1 ♀, "India, Mysore, 10 mi. NW. Kittur, 15.II.1962, E. S. Ross & D. Q. Cavagnaro" (CAS); 1 ♀, "Malaya, Cameron Highlands, Mt. Brichang, 2—7.I.59" (BPBM); 2 ♀, "India, A. P., Warangal, A. R. S. Coll." (DZD, RMNH); 1 ♀, "India, U.P., Dehra Dun, 600 m, 8.IV.1976, S. Biswas No. B13" (DZD). Specimens excluded from the type-series: 1 ♂, "Kandy, Ceylon, W. Horn", "Co-type", "*Macrocentrus ceylonicus* Enderl., ♂, Type, Dr. Enderlein det. 1912". A wrongly identified specimen, still belonging to the type-series of *Metapleurodon ceylonicus* (Enderlein) (PAN). Furthermore 1 ♀, "Jonkershoek, near Stellenbosch, X.8.70, S.

Africa, H. & M. Townes" (TC), excluded from the type-series because of the colour and sculpture. Middle of frons, stemmaticum, middle of mesoscutal lobes, antenna apically, pterostigma, propodeum, meso- and metapleura dorsally, 1st tergite, base of 2nd tergite and tarsi, more or less dark brown; 2nd tergite is somewhat rugulose basally; 1 ♂, "Kenton-on-Sea, South Africa, April 1971, Rex Jubb" (TC), excluded because the apices of the hind tibia are sharp and hyaline.

Variation: length of fore wing 3.5—7.1 mm, antennal segments 39—44; length of 4th segment of labial palp 1.6—2.5 times 3rd segment; length of 1st tergite 1.7—2.6 times its apical width; length of malar space 0.8—1.1 times basal width of mandible; length of hind femur 5.6—6.3 times its width, exceptionally 4.9 times; hind tibial spurs of male (sub)truncate and pigmented apically (figs. 308, 310); length of ovipositor-sheath 0.08 times fore wing; claws at most indistinctly yellowish pectinate basally; apical width of marginal cell 1.9—2.2 times its maximum basal width.

Homolobus (Apatia) pallidistigmus (Cameron) comb. nov.
(figs. 327—331, 334—340, 709, 712)

Cameron, 1911, Ann. Transv. Mus. 2: 210 (as *Macrocentrus pallidistigmas*).
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 166.

Holotype, ♂, length of body 9 (according to Cameron), of fore wing 8.9 mm, metasoma and hind leg absent.

Head. — Remaining antennal segments 12, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 2.9 and 2.6 times their width, respectively; length of 4th segment ca. twice 3rd segment; length of maxillary palp about equal to height of head; inner sides of eyes rather emarginate (fig. 330); POL : ∅ ocellus : OOL = 9 : 9 : 7; frons mainly rugose, flat (fig. 328); vertex superficially punctulate; face densely punctulate, near eyes and near clypeus almost smooth, rather flat; clypeus almost smooth, superficially and remotely punctulate, flattened; apical margin of clypeus somewhat convex medially, not differentiated from clypeus (fig. 330); length of malar space ca. 0.8 times basal width of mandible; upper condyli of mandibles distinctly below lower level of eyes (fig. 330).

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum ventrally smooth, medially crenulate, posteriorly and dorsally closely punctate (fig. 327); epicnemial area densely punctate; precoxal suture shallow, densely punctate; rest of mesopleuron finely punctulate, almost smooth; metapleural flange large, lamelliform, rounded apically (fig. 327); notauli deep and finely crenulate (fig. 331); surface of propodeum densely punctate-rugose, but almost smooth anteriorly, without carinae medially.

Wings. — Fore wing: r : 3-SR : SR1 = 10 : 17 : 73; SR1 curved (fig. 329); cu-a subinterstitial, inclivous, and somewhat curved basad apically; 2-SR : 3-SR : r-m = 17 : 17 : 10; 2A sclerotized basally (fig. 329); area basally of 2A remotely setose. Hind wing: r absent; 2-SC+R transverse; SR weakly sinuate, basally rather sclerotized (fig. 329); SR+R1 straight (fig. 337); apical width of marginal cell 2.4 times its maximum basal width.

Legs. — Middle coxa smooth; middle spurs of hind tibia 0.3 times basitarsus, subequal.

Colour. — Brownish-yellow; stemmaticum blackish; pterostigma mainly light yellowish; according to the original description the apical half of the antenna is black.

Holotype in TMP, Pretoria: "Rietf., 11.2.05, 11." (= Rietfontein, Pretoria District, S. Africa), "*Macrocentrus pallidistigmus* Cam., Type" (in Cameron's handwriting). Additional specimens examined (17 ♀ and 14 ♂) from Kenya (Karen, Nairobi; nr. Nairobi, 6000 ft), Uganda (Zika Forest, Mengo; Kampala; Katona, Mujenje), Tanzania (W. Usambara Mts., 2100 m, Magamba; Mt. Meru, 1800 m; Chome, Pare Mts., 1800 m), and Zaire (Rutshuru) (TMA, MAC, RMNH, CNC, TC).

Variation: Length of fore wing 7.0—9.5 mm; antennal segments 54 in one ♀; length of 4th segment of labial palp 2.6—2.8 times 3rd segment; length of malar space 0.8—1.1 times basal width of mandible, exceptionally 0.6 or 0.7 times; length of 1st tergite 2.8—3.4 times its apical width (fig. 334); length of hind femur 6.9—7.0 times its width (fig. 338); length of ovipositor sheath 0.04—0.06 times fore wing (fig. 335); tibial spurs of hind leg of males truncate and pigmented apically, rather slender (figs. 709, 712); claws simple, more or less pectinate basally (figs. 339, 340); apical width of marginal cell of hind wing 2.4—2.6 times its maximum basal width; antenna more or less yellowish-brown.

Notes. *Homolobus* (*Apatia*) *pallidistigmus* (Cameron) belongs to a group of four species, which are sometimes difficult to separate. The two most closely allied species being *ophioninus* and *truncatoides*, while *huddlestoni* is related to *ophioninus* but rather easily recognizable, these three being usually somewhat smaller than *pallidistigmus*. *H. ophioninus* is separable by the rather transverse frontal aspect of the head, because of the highly situated upper condyli of the mandibles. While *truncatoides* has a more trapezoidal frontal aspect of the head as in *pallidistigmus*, the latter differs from *truncatoides* by a more widened marginal cell of the hind wing, a (usually) more developed basal third of vein SR of hind wing, and a more straight SC+R1. Because the variation is considerable, a careful examination is needed to arrive at a reliable identification. The shape of the hind tibial spurs of the males, for instance, may be useful; in *pallidistigmus* the spurs are rather slender apically, while in *ophioninus* and usually also in *truncatoides* they are stout apically. Because of the variation other characters have to be considered as well! *Macrocentrus pallidistigmus* Cameron sensu Szépligeti belongs to "*Macrocentrus*" *albitarsis* Granger, 1949.

Subgenus **Chartolobus** nov.

Etymology: from "charta" (Latin for "lamina") and "lobus" (Latin for "protuberance"), because of the more or less developed ventral lamella of the claws. Gender: masculine.

Type-species: *Zele infumator* Lyle.

Diagnosis. — Length of body 7.1—14.6, of fore wing 7.0—15.9 mm; antennal

segments 46—52, its 3rd—6th segments of ♀ with a ridge at the inner side (figs. 348, 366, 877, 878); length of 4th segment of labial palp 3.0—4.0 times 3rd segment; length of maxillary palp 1.5—1.7 times height of head; apical margin of clypeus straight medially and more or less differentiated from clypeus (figs. 344, 374); length of malar space 0.4—0.8 times basal width of mandible; temples roundly (fig. 347) or directly (fig. 375) narrowed apicad; length of hind femur 6.1—7.8 times its width; claws with a subapical tooth or lamella (figs. 350, 364); inner hind claw of ♀ concave and bare ventro-basally (figs. 351, 365, 888); hind telotarsus of ♀ more or less bare near base of inner hind claw (fig. 888); apices of hind tibial spurs of ♂ sharp and hyaline; 1A + 2A of fore wing curved (figs. 353, 369, 380); basal third of SR of hind wing mainly sclerotized (figs. 349, 368, 379), curved (fig. 343) or almost straight (fig. 379); SC + R1 of hind wing curved (figs. 349, 382); r of hind wing absent; length of 1st tergite 2.1—3.1 times its apical width; 2nd tergite smooth; length of ovipositor sheath 0.04—0.07 times fore wing; posterior part of propodeum more or less separated from antero-dorsal part by a transverse carina (figs. 341, 352, 358, 729), both in about the same plane.

Distribution. — One of the three species has an immense distribution; it ranges from the South Neotropical region (Argentina), through the Holarctic region as far as the Oriental region (Indonesia). Both other species occur in the Australian region, and *H. undulatus* occurs also in the Oriental region.

Key to the species of the subgenus *Chartolobus*

1. Vein 2A of fore wing widened basally and apically if compared with the surrounding veins (figs. 368, 369, 379, 380); Indo-Australian 2
— Vein 2A of fore wing slender, not or slightly widened if compared with surrounding veins (figs. 343, 353); Neotropical, Holarctic, Oriental . . . . . *infumator* (Lyle) (p. 305)
2. Vein SR of hind wing weakly curved basally (fig. 368); vein 2A of fore wing less widened (fig. 369); face more shiny and punctulate (fig. 360); pterostigma light brownish or yellowish brown; hind tarsus yellowish or whitish; Indo-Australian . . . . . *undulatus* spec. nov. (p. 309)
— Vein SR of hind wing straight basally or nearly so (figs. 379, 382); vein 2A of fore wing strongly widened (fig. 380); face rugulose-coriaceous laterally and rather dull (fig. 374); pterostigma and hind tarsus blackish; Australian . . . . . *nigritarsis* spec. nov. (p. 310)

Homolobus (Chartolobus) infumator (Lyle) comb. nov.
(figs. 171—173, 341—353, 877, 878, 888)

Nees von Esenbeck, 1834, Hym. Ichn. affin. Mon. 1: 202, 203 (as *chlorophthalmus*, nec Spinola, 1808!).
Lyle, 1914, Entomologist 47: 288, 289, figs. 2, 5, 9 (as *Zele*).
Bengtsson, 1918, Acta Univ. lund. (2)14(32): 39, 41 (*Phylacter wesmaeli*). **Syn. nov.**
Watanabe, 1932, Insecta matsum. 6: 135 (*Zele testaceator* f. *japonica*).
Watanabe, 1969, Proc. ent. Soc. Wash. 71: 319—324, fig. 7.

Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 224.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 230, 231.
Čapek, 1972, Ent. Problémy 10: 133, 136.
Kabatsjinskajte & Jakimavičius, 1973, Acta ent. Lituanica 2: 86.
Jakimavičius, 1974, Tr. AN Lit. SSR B2(66): 97.
Čapek, 1975, Biológia 30: 819.
Van Achterberg, 1976b, Tijdschr. Ent. 119: 73, figs. 103, 104.
Tobias, 1976, Opr. Fauna SSSR 110: 133, fig. 39: 5, 6.

Redescribed after the lectotype of *H.* (*C.*) *wesmaeli* (Bengtsson), ♂, length of fore wing and of body both 7.1 mm.

Head. — Antennal segments 37, but apical segments absent, 3rd segment 1.3 times 4th segment, length of 3rd and 4th segments 4.0 and 3.2 times their width, respectively; length of maxillary palp 1.5 times height of head; eyes weakly emarginate (fig. 344); dorsal length of eye 1.6 times temple; temple rounded apicad (fig. 347); POL : ∅ ocellus : OOL = 8 : 7 : 6; frons almost smooth and flat; vertex smooth; face rather flat, transversely rugose-striate, but triangular area above clypeus smooth (fig. 344); clypeus rather flat, superficially punctulate, almost smooth; length of malar space 0.7 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum superficially punctulate, with some short crenulae medially (fig. 341); epicnemial area almost smooth; precoxal suture anteriorly finely rugose, its posterior half smooth (fig. 341); rest of mesopleuron indistinctly punctulate; metapleural flange large, lamelliform, rounded apically; metapleuron punctulate; notauli finely crenulate (fig. 172); mesoscutal lobes punctulate; surface of propodeum smooth, except for some rugae medially and irregular medial and transverse carinae, with an arc-shaped carina posteriorly, enclosing a small semicircular areola (cf. fig.352).

Wings. — Fore wing: r : 3-SR : SR1 = 7 : 13 : 54; SR1 slightly curved (fig. 343); cu-a shortly antefurcal, straight; 2-M + CU1 : CU1 = 1 : 22; 2-SR : 3-SR : r-m = 12 : 13 : 9; 2A sclerotized and slender basally (fig. 353); area basally of 2A bare except for some setae basally. Hind wing: Basal third of SR sclerotized and curved (fig. 343); SC + R1 strongly curved (fig. 349); marginal cell distinctly constricted (fig. 343).

Legs. — Hind coxa smooth; tarsal claws with a subapical tooth (fig. 345); length of femur, tibia and basitarsus of hind leg 7.0, 10.9, and 9.0 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.4 times its apical width, its surface smooth (fig. 346); dorsal carinae of 1st tergite absent.

Colour. — Brownish-yellow; stemmaticum dark brown.

Lectotype in KBIN, Brussels: "Coll. Wesmael", "1876", "*Phylax chlorophthalmus* N.V.Es., ♂♀, dét. C. Wesmael", "Type". Lectotype of *Phylacter wesmaeli* Bengtsson, 1918, herewith selected, and labelled accordingly. There are in the Wesmael Collection two other heavily damaged specimens with simple claws which probably belong to *truncator*.

The type-series of *Zele infumator* Lyle consists of 11 ♀ and 13 ♂, of which several are reared from *Alcis repandata* (L.) and one ♀ from *Agonopterix*

alstroemeriana (Clerck), is in the BM collection (London). One ♂ (glued on a card with a red dot, "type", and "530", with a whitish cocoon, "B.M. Type Hym., 3.c.56", "*Zele infumator* Lyle", "G. T. Lyle, New Forest, 31.5.10, Ex *B.* (= *Boarmia*) *repandata*", "G. T. Lyle Coll., B.M. 1930—579") is herewith selected as lectotype. The propodeum is strongly areolate (fig. 352), the 1st tergite somewhat reticulate-punctate and its length 2.2 times its apical width, and wings slightly infumated apically.

The type of *H.* (*C.*) *japonicus* (Watanabe) is a normal specimen of *infumator*, with rather whitish hind tarsi, a feature not uncommon in New World populations. The holotype is a ♀, housed in EI, Sapporo: "23.X.1924, Takao, Takeuchi", "*Zele testaceator* Curtis f. *japonicus*, Type", "Type Hym. 22 No. 22".

Additionally examined specimens: 209 ♀ and 106 ♂. From the Neotropical region: Argentina (S. Pedro d. Colalao, 1200 m; Horco Molle, nr. Tucumán; Villa Nogues; Tafi del Valle), Peru (Dept. Lima, Matucana, 2389 m), Bolivia (Coroico, Yungas La Paz; Coroico, 1800 m), and El Salvador (Monte Cristo, 2300 m). From the Nearctic region: Mexico (Chis., 7200 ft, S. Crist. las Casas; Chis., 9600 ft, Zontehuitz, nr. S. Crist.; Dgo., 30 mi. W. La Cuidad, 6500 ft; id., 24 mi. W. La Cuidad, 7000 ft; Dgo., 9000 ft, 10 mi. W. El Salto), California (Skyline Blvd., San Mateo Co.; Mill Valley, Marin Co.; Orinda Village, Contra Costa Co., San Pablo Ridge, below Eureka peak, 1000—1200 ft, oak-chaparral zone; Julian; Lake Wohlford; Forest Glen, 2300 ft, Trinity Co., black light), Nevada (Lee Cyn., 40 mi. NW. Las Vegas, Clark Co., 7400—7500 ft; Baker Creek Camp, 8 mi. W. Baker, White Pine Co., 7700 ft), Arizona (5 mi. W. Portal, Cochise Co., 5400 ft; Huachuca Mts., Cochise Co., Floor of Carr Cyn, 5400 ft; id., 15 mi. S. Sierra Vista, Ramsey Cyn., 5000—6000 ft; Hidden Springs Cyn., 4875 ft, 12 mi. S. Sonoita; Canelo, Santa Cruz Co.; Portal), New Mexico (Cimarron Cyn., 7900 ft, Sangre de Cristo Mts., Colfax Co., black light; Ute Park, 7300 ft), Colorado (Saguache Co., Valley View Springs, ca. 7 mi. E. of Mineral Hot Springs on W. foot of Sangre de Cristo Range, ca. 8500 ft), Utah (Whiterock, 7300 ft), Florida (Waldo; Hawthorne), Montana (Missoula, 3000 ft), Illinois (no locality), South Carolina (Wattacoo, Pickens Co.), Minnesota (Big Fork), Washington (19 mi. NW. Newport, 2850 ft), Maine (Dryden), New Brunswick (Charls Fork, N. Branch), Quebec (L. Expanse; La Tugie; Otter Lake; Lake Mondor, Ste. Flore, at light), Ontario (Ottawa, Dow's Swamp; Sudbury), and British Columbia (Victoria; Squamish, Diamond Head Trail, 3200 ft; Great Central L.; 28 mi. S. Radium Hot Springs, 2600 ft).

From the Palaearctic region: Finland (Helsinki; Somerniemi; Lappträsk; Ruokolanti), USSR (Vilnius, Verkiat, Lit. SSR; Armenia, Tsav, Jabl. sad), Sweden (Skåne), Denmark (Veldes; Hannenvo, Falster; Egebjeggd, Nordfyn; Odense), East Germany (Berlin), West Germany (Steinebach am Wörthsee; Haffen; Lüneburgerheide; Gräfelfing; Reither Alm, 850 m; Rheinhöhenweg im Kottenforst (nr. Bonn); Mainz; Spessart, Lochmühle), Ireland (Drinnahilly, C. Do.; Tollymore Pk., Co. Do.; Bansla Wd., Co. St.; Old Head, Co. Wm.; Lodge Wds, Glengariff, Co. Wo.), England (Essex, Round Stone (in Curtis Collection, under *chlorophthalmus*); Hants., New Forest, Minstead), Netherlands (Dorst, nr. Breda; Valkenswaard; Harskamp; Amersfoort, Den Treek; Putten (Gld.);

't Harde; Hilversum; Hoog Soeren; Vierhouten; Heerde; Nunspeet; Crailo; Den Dolder; Ede (Gld.); Loenen; Muiderberg; Naardermeer; Overveen; Melissant; Chaam; Amsterdamse Duinwaterleiding, nr. Vogelenzang; Tegelen; Molenven (? nr. Oisterwijk); Oostkapelle; Oploo; Venlo; Bergen op Zoom), France (Jura, Baudiette), Spain (Huesca, Torla, 1035 m), Italy (Garda Lake, Malcesini, 300 m; Süd-Tirol, Cortina d'Ampezzo, Pokol, 1527 m; Tirol, Leutaschstrasse nr. Mittenwald, ca. 1000—1100 m; San Marino, Marche; Riva s. Garda, 250 m), Austria (Styr., Podčetrtek; Nordkitte, 2000 m; Styria m., Sausal-Gebirge, Kitzeck, 300—500 m), Czechoslovakia (Radošima, 8 km SE. Piest'any, Povazsky Inovex; Hostýn-okoli, Mor. or.), Romania (Transsylv. Alp., Cibins. Mts., Hohe Rinne), Greece (Ellas, Kerkyra, Dassia, 5 km SE. Korakiana), Nepal (Ktmd., Pulchauki, 8000 ft), and Japan (Mie Honshu; Kyoto, Honshu; Nagano, Honshu; Sapporo; Jokohama; Hirakura, Mie Honshu). From the Oriental region: Taiwan (Sunmoon Lake), Philippines (Baguio, Benguet), India (U.P., 8000 ft, Chakrata), and Indonesia (Java, Kenden(g) Ridge, 1500 m) (RMNH, ITZ, EI, CNC, BM, MSU, AMNH, CAS, UCA, TC, UZM, HC, ZMH, ZMB, IZP, ZSB, USNM, NMV).

Variation: Length of fore wing 6.8—10.0 mm; antennal segments 46—50; flagellum of antenna often dark brown of blackish basally; cu-a of fore wing shortly antefurcal, interstitial or shortly postfurcal; 2-SC + R sometimes quadrate; cocoon whitish or yellowish; length of ovipositor sheath 0.05—0.07 times fore wing; length of malar space 0.3—0.7 times basal width of mandible.

Known hosts of examined specimens: *Lambdina fiscellaria* (Guenée), *L. somniaria* (Hulst), *Nepytia canosaria* (Walker), *Alcis repandata* (L.), *Lycia zonaria* (Denis & Schiff.), *Ematurga atomaria* (L.) (all belonging to the Geometridae), and *Agonopterix alstroemeriana* (Clerck), the latter belonging to the Oecophoridae.

Note. Nees (1834) has used the name *chlorophthalmus* in the genus *Rogas* probably (at least partly) for this species and referred to the description of *Bracon chlorophthalmus* Spinola, 1808, in this manner devaluing his description to merely a misidentification of Spinola's species, as pointed out under *Zele chlorophthalmus* in this paper (p. 372). The misinterpretation was accepted by Wesmael (1835), whose two specimens still exist. Through the action of Bengtsson (1918), who renamed *chlorophthalmus* sensu Wesmael as *wesmaeli*, they became part of the type-series of *Homolobus* (*C.*) *wesmaeli* (Bengtsson, 1918). In the Wesmael Collection there are one ♂ and two damaged specimens, probably females. In his description Wesmael stated that he possessed one ♂ and one ♀, of which the ♂ had the metasoma darkened dorsally. This male is selected as lectotype of *wesmaeli* in this paper; the lectotype is a specimen of *infumator*, which is a senior synonym of *wesmaeli*. The interpretation of *chlorophthalmus* sensu Nees (nec Spinola & Haliday) is uncertain and his specimens are lost. I have rejected the interpretation by Nixon (1938), because Wesmael is the first revisor of Nees' interpretation and the lectotype of *wesmaeli* fits well the description by Nees. The species which is named *Homolobus truncator* (Say) in this paper, was named *Zele chlorophthalmus* sensu Nees by Nixon (1938).

Homolobus (Chartolobus) undulatus spec. nov.
(figs. 358—369, 729, 730)

Holotype, ♀, length of body 14.6, of fore wing 15.9 mm.

Head. — Antennal segments 52, ridge of 4th—6th segments undulate (fig. 366), 3rd segment 1.3 times 4th segment, length of 3rd and 4th segments 3.5 and 2.8 times their width, respectively, length of both penultimate segments 2.0 and 2.4 times their width; length of maxillary palp 1.7 times height of head; eyes rather emarginate (fig. 360); dorsal length of eye 2.2 times temple; temple directly narrowed posteriad (fig. 363); POL : ∅ ocellus : OOL = 6 : 13 : 8; frons somewhat concave medially, mainly smooth; vertex flat, somewhat punctulate and coriaceous; face mainly flat, punctulate; clypeus weakly convex, punctulate (fig. 360); length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum smooth, except for some short crenulae medially and somewhat rugose posteriorly (fig. 358); epicnemial area punctulate; precoxal suture crenulate antero-dorsally, densely punctate antero-ventrally, and its posterior half finely punctulate, as rest of mesopleuron (fig. 358); metapleural flange large, lamelliform, sharp apically, and with a medial carina; metapleuron punctulate, ventrally with some carinae; notauli rather narrow and mainly smooth (fig. 359); surface of propodeum smooth, but medially carinate-rugose, with irregular lateral and transverse carinae (fig. 729).

Wings. — Fore wing: r : 3-SR : SR1 = 11 : 22 : 77; SR1 weakly curved (fig. 368); cu-a weakly inclivous, postfurcal; 1-CU1 : 2-CU1 = 2 : 27; 2-SR : 3-SR : r-m = 19 : 22 : 12; 2A strongly widened and sclerotized basally (figs. 368, 369); area basally of 2A mainly bare. Hind wing: Basal third of SR sclerotized and curved (fig. 368); SC + R1 strongly curved (fig. 367); marginal cell distinctly constricted.

Legs. — Hind coxa punctulate; tarsal claws with a rather large ventral lamella, which is sharp apically, setose (figs. 364, 365); length of femur, tibia and basitarsus of hind leg 7.8, 11.9, and 10.2 times their width, respectively; length of spurs of hind tibia 0.5 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 3.1 times its apical width, its surface mainly smooth, laterally and posteriorly somewhat rugulose (fig. 729); dorsal carinae of 1st tergite weakly developed in front of spiracles; length of ovipositor sheath 0.04 times fore wing.

Colour. — Brownish-yellow; stemmaticum blackish; surroundings of stemmaticum somewhat infuscated.

Holotype in RMNH, Leiden: "Neth. Ind.-Amer. New Guinea Exped., 2800 m, Moss Forest Camp, 18.X.1938, L. J. Toxopeus leg.". For location of the camp, see Toxopeus (1940). Paratypes: (10 ♀ and 8 ♂) from New Guinea (1 ♂, allotype, "N.E. New Guinea, Eastern Highlands, Mt. Wilhelm, VI.1965, Research Station, v. Balgooy"; 2 ♀, "Net. Ind.-Amer. New Guinea Exp., 1938, Lake Habbema, 3250—3300 m, ult. VII-ult. VIII., L. J. Toxopeus leg."; 1 ♀, "Museum Leiden, Nieuw Guinea Exp., K.N.A.G. 1939, Paniai, 19.XI.1939", (all RMNH); 1 ♂, "New Guinea (NE), Morobe, Mt. Kaindi, 2350 m, X.1974"; 1 ♀, "New Guinea, NE., Mt. Kaindi, 2350 m, 12.xi.1964" (both BPBM)), Australia (1♀ (TC), "Mt.

Cootha, Qld., V.1—17, Australia"), Indonesia (1 ♀ (RMNH), "Dammerman, Idjen, 950 m, Blawan, VI.1924"; 1 ♂ (RMNH), "Museum Leiden, J. v. d. Vecht, G. Bentang, III.1938"; 1 ♀ (RMNH), "Museum Leiden, J. v. d. Vecht, G. Tjangkoedang, Djampang Wetan, XI.1938"), India (2 ♀ (CNC, RMNH), "Anamalai Hills, Cinchona, India, 3500′ (ft), IV.1957, P. S. Nathan"; 2 ♂ (CNC, RMNH), "Anamalai Hills, Madras St., S. India, 3500′ (ft), V.1963, P. S. Nathan" 2 ♂ (CNC), "Devala, Nilgiri Hills, 3200′ (ft), S. India, X.1960, P. S. Nathan"), and Taiwan (1 ♀ (TMA), "Formosa, Sauter", "Chip-Chip, (1)909, II"; 1 ♂ (TC), "Bukai, Formosa, VI—11'34", "L. Gressitt Collector").

Variation: Length of fore wing 10.7—15.7 mm; antennal segments 47—52; length of malar space 0.4—0.8 times basal width of mandible; length of maxillary palp 1.5—1.7 times height of head; length of 1st tergite 3.0—3.1 times its apical width, length of ovipositor sheath 0.05 times fore wing (in five specimens measured); hind tarsus sometimes rather whitish-yellow or whitish, mesoscutum partly and apex of metasoma sometimes infuscated; vein 2-SC+R sometimes quadrate.

Homolobus (Chartolobus) nigritarsis spec. nov.
(figs. 370—384)

Holotype, ♀, length of body 12.3, of fore wing 12.0 mm.

Head. — Antennal segments 51, 3rd—7th segments with a rather straight ridge (fig. 381), 3rd segment 1.4 times 4th segment, length of 3rd and 4th segments 4.7 and 3.4 times their width, respectively, length of both penultimate segments 2.0 and 2.1 times their width; length of maxillary palp 1.5 times height of head; eyes weakly emarginate (fig. 374); dorsal length of eye 2.6 times temple; temple directly narrowed posteriad (fig. 375); POL : ∅ ocellus : OOL = 11 : 10 : 8; frons concave, smooth; vertex almost flat, indistinctly coriaceous; face almost flat, mainly rugulose-coriaceous and rather dull, but medially punctulate and more shiny (fig. 374); clypeus convex, punctulate; length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum medially and posteriorly crenulate, and dorsally somewhat punctate (fig. 370); epicnemial area smooth, except fore some punctulation; anterior half of precoxal suture shallowly crenulate dorsally and punctate ventrally, its posterior half smooth dorsally and finely punctate ventrally; rest of mesopleuron smooth, except for some punctulation; metapleural flange large, rounded apically, lamelliform, with carinae (fig. 370); metapleuron smooth dorsally, reticulate ventrally; notauli indistinctly crenulate, only posteriorly wider crenulate (fig. 384); surface of propodeum coarsely and remotely reticulate, anteriorly and posteriorly narrowly smooth.

Wings. — Fore wing: r : 3-SR : SR1 = 13 : 21 : 60; SR1 almost straight (figs. 379); cu-a almost straight, postfurcal; 1-CU1 : 2-CU1 = 3 : 25; 2-SR : 3-SR : r-m = 18 : 21 : 12; 2A very wide and sclerotized basally (figs. 379, 380); area basally of 2A bare, basally and ventrally brownish pigmented (fig. 380). Hind wing: Basal fifth of

SR sclerotized, rather straight (fig. 379); SC + R1 rather curved (fig. 382); marginal cell scarcely constricted.

Legs. — Hind coxa punctulate; tarsal claws with a sharp subapical lamelliform tooth (fig. 378), setose, and basally indistinctly pectinate, except inner hind claw (fig. 383); length of femur, tibia, and basitarsus of hind leg 6.1, 9.7, and 7.2 times their width, respectively; length of spurs of hind tibia 0.7 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 3.1 times its apical width, its surface posteriorly and laterally partly rather weakly reticulate-rugose (fig. 372); dorsal carinae of 1st tergite shortly developed basally; length of ovipositor sheath 0.06 times fore wing.

Colour. — Brownish-yellow; stemmaticum, antenna (but scapus and pedicellus somewhat reddish), apical 0.6 of hind tibia, hind tarsus (but telotarsus rather reddish), pterostigma, parastigma, and most wing veins, more or less dark brown; basal half of wing membrane yellowish, its apical half infumate.

Holotype in RMNH, Leiden: "Neth. Ind.-American New Guinea Exped., Araucaria Camp, 800 m, 23.iii.1939, L. J. Toxopeus". For location of the camp, see Toxopeus (1940). Paratypes: 1 ♀, 2 ♂; 1 ♂ (TC), "Wau & Mt. Kaindi, 4—6500′ (ft), N. Guinea, June 17—22, 1962, Bernd Heinrich"; 1 ♂ (TC), "Wau, N. Guinea, October, 1969, P. Shanahan"; 1 ♀ (BPBM), "New Guinea (NE), Wau, Morobe Distr., 1200 m, 11—18.x.1961". Length of fore wing 9.1—11.1 mm, antennal segments 49 (one ♂), length of 1st tergite 3.1 times its apical width, body partly rather whitish yellowish; antenna of ♀ paratype baso-ventrally undulate and lamelliform, as in *undulatus*.

Subgenus **Homolobus** Foerster

Foerster, 1862, Verh. naturh. Ver. preuss. Rheinl. 19: 256.
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 221.

Type-species: *Phylax discolor* Wesmael.

Diagnosis. — Length of body 5.1—11.5, of fore wing 5.3—10.6 mm; antennal segments 42—48, its 3rd—6th segments of ♀ with a longitudinal ridge at the inner side (figs. 391, 424, 451); length of 4th segment of labial palp 3.5—6.0 times 3rd segment; length of maxillary palp 1.2—1.7 times height of head; apical margin of clypeus straight (fig. 388) or rather convex (fig. 411) apically, not (fig. 461) or weakly (fig. 445) differentiated from clypeus; length of malar space 0.4—1.3 times basal width of mandible; eyes weakly emarginate (figs. 388, 411); temples roundly (fig. 409) or directly (fig. 429) narrowed posteriad; length of hind femur 5.8—6.9 times its width; claws with a small subapical tooth (fig. 426), bifurcate (fig. 406), with a lamella (fig. 392), or double lamella (fig. 394); inner hind claw of ♀ concave and glabrous ventro-basally (figs. 427, 439, 452, 885—887); hind telotarsus of ♀ more or less bare near base of inner hind claw (figs. 885—887); apices of hind tibial spurs of ♂ sharp and hyaline (fig. 410); 1A + 2A of fore wing straight (figs. 396, 436); basal third of SR of hind wing only pigmented, unsclerotized, straight or nearly so (figs. 402, 446, 469); SC + R1 of hind wing straight (fig. 404) or weakly curved (fig. 434); r of hind wing absent (fig. 396) or present (fig. 469); length of 1st

tergite 1.7—3.0 times its apical width; 2nd tergite smooth (fig. 400) or sculptured (fig. 414); length of ovipositor sheath 0.06—0.39 times fore wing; posterior part of propodeum not (fig. 444) or distinctly (fig. 401) separated from antero-dorsal part.

Distribution. — The subgenus *Homolobus* is restricted to the Palaearctic and Afrotropical regions. Because the shape of the inner hind claw of the ♀ is unknown, the relationship of *rugosus*, and to a lesser degree of *simplex*, with the other species of the subgenus is uncertain. The Palaearctic has three species: one widely distributed Palaearctic species (*discolor*), and two East Palaearctic species, of which *simplex* is an aberrant species, not closely related to *dauricus*.

There are four Afrotropical species, of which one (*rugosus*) is very aberrant, but the other three are closely interrelated. One of them is restricted to the African continent (*ethiopicus*), while two others are restricted to Malagasy.

Key to the species of the subgenus *Homolobus*

1. Claws bifurcate (fig. 406); 2nd tergite rugose (fig. 414); vertex punctate (fig. 409); vein SC + R1 of hind wing short, R1 mainly absent, and hamuli separated from R1 (fig. 412); Malagasy . . . . . *rugosus* spec. nov. (p. 314)
— Claws with lamella (figs. 390, 394) or with a small subapical tooth (fig. 426); 2nd tergite smooth (fig. 428); vertex punctulate (fig. 429); vein SC + R1 of hind wing longer, R1 present, short, and hamuli situated at R1 (fig. 425) 2
2. Claws of ♀ and fore claw of ♂ with a ventral lamella (figs. 390, 392), middle and hind claws of ♂ with a 2nd lamella situated on the 1st lamella (figs. 393, 394); propodeum coarsely areolate, with its surface mainly smooth (fig. 400); East Palaearctic . . . . . *simplex* (Watanabe) (p. 313)
— Claws of ♀ and ♂ with a subapical tooth (figs. 426, 443); propodeum not areolate, or, if areolate, then surface densely rugose posteriorly (fig. 431) 3
3. Precoxal suture, its surroundings and hind coxa coarsely sculptured (figs. 416, 431); at least base of palpi infuscated; vein r of hind wing absent (fig. 418); Afrotropical 4
— Precoxal suture (except anteriorly), its surroundings and hind coxa at most punctulate, usually smooth (figs. 459, 467); palpi whitish or yellowish; vein r of hind wing present (figs. 460, 469); Palaearctic 6
4. Second tergite whitish; subapical tooth of tarsal claws of ♀ scarcely visible at 80 × (fig. 443) or, if easily visible, then length of ovipositor sheath 0.14—0.17 times fore wing; Malagasy 5
— Second tergite dark brown and partly reddish- or yellowish-brown; subapical tooth of tarsal claws of ♀ easily visible at 80 × (figs. 452, 455); length of ovipositor sheath 0.07—0.08 times for wing; African Continent . . . . . *ethiopicus* spec. nov. (p. 318)
5. Length of ovipositor sheath 0.14—0.17 times fore wing, about as long as apical height of metasoma, slender as ovipositor (fig. 416); subapical tooth of tarsal claws of ♀ well visible at 80 ×, small (figs. 426, 427) . . . . . *cingulatus* (Granger) (p. 315)
— Length of ovipositor sheath 0.06—0.09 times fore wing, distinctly shorter than

apical height of metasoma, rather stout as ovipositor (fig. 431); subapical tooth of tarsal claws of ♀ scarcely visible at 80 ×, minute (figs. 439, 443) . . . . . *inopinus* spec. nov. (p. 316)

6. Length of ovipositor sheath 0.09—0.12 times fore wing, short (fig. 459); propodeum without an areola, smooth, except for some rugae (fig. 459); mesopleuron smooth (fig. 459); Palaearctic . . . *discolor* (Wesmael) (p. 319)

— Length of ovipositor sheath 0.36—0.39 times fore wing, comparatively long (fig. 467); propodeum with a suboval areola, surrounded by rugosity (fig. 467); mesopleuron punctulate (fig. 467); East Palaearctic . . . . . *dauricus* Shestakov (p. 320)

Homolobus (Homolobus) simplex (Watanabe) comb. nov.
(figs. 385—400)

Watanabe, 1932, Insecta matsum. 6: 135, 136, fig. (as *Zele*).
Watanabe, 1969, Proc. ent. Soc. Wash. 71: 319, 324, 325, figs. 4, 5.
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 226.

Holotype, ♀, length of body 9.6, of fore wing 9.7 mm.

Head. — Remaining antennal segments 26, apical segments missing, 3rd segment 1.3 times 4th segment, length of 3rd and 4th segments 4.4 and 3.5 times their width, respectively; length of maxillary palp 1.5 times height of head; dorsal length of eye 2.1 times temple; temple roundly narrowed posterially (fig. 387); POL : ∅ ocellus : OOL = 4 : 8 : 5; frons almost flat and smooth; vertex dull, flat and coriaceous (fig. 387); face rather flat, laterally rather dull, coriaceous, medially rugulose; clypeus remotely punctate, rather convex; apical margin of clypeus not differentiated, rather thick, and almost straight medially (fig. 388); length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum rugose and crenulate medially, ventrally and dorsally mainly smooth (fig. 385); epicnemial area rugose; precoxal suture largely reticulate, smooth apically; rest of mesopleuron punctulate; metapleural flange large, sharp and narrowly lamelliform apically (fig. 385); metapleuron largely punctulate, coarsely rugose ventrally; notauli extensively crenulate (fig. 398); mesoscutal lobes punctulate; surface of propodeum coarsely areolated, the enclosed areas smooth and with a short medial carina anteriorly (fig. 400); posterior part of propodeum not well separated from antero-dorsal part (fig. 385).

Wings. — Fore wing: r : 3-SR : SR1 = 9 : 15 : 53; SR1 almost straight (fig. 396); cu-a inclivous, shortly postfurcal; 1-CU1 : 2-CU1 = 2 : 23; 2-SR : 3-SR : r-m = 13 : 15 : 7; 2A sclerotized basally (fig. 396); area basally of 2A bare except for ca. 8 setae apically. Hind wing: r absent; SC + R1 weakly curved (fig. 399).

Legs. — Hind coxa punctate dorsally, punctulate laterally; hind tarsal claws absent; fore and middle claws with a rather large ventral lamella, yellowish pectinate; length of femur, tibia and basitarsus of hind leg 6.2, 10.0 and 8.2 times their width, respectively; length of spurs of hind tibia 0.8 and 0.6 times basitarsus.

Metasoma. — Length of 1st tergite 2.6 times its apical width, its surface reticulate-rugose, medially weakly developed, with a smooth tubercle apically (fig. 400); dorsal carinae of 1st tergite absent; 2nd tergite smooth; length of ovipositor sheath 0.06 times fore wing.

Colour. — Brownish-yellow; stemmaticum and apices of antennal segments (except scapus and pedicellus), blackish.

Holotype in EI, Sapporo: "Hokkaido, Uchida/Jôzankei, 15/8-1925", "Type", "*Zele simplex* Watanabe, ♀, Type", "Type Hym. No. 23". One ♂ additionally examined: (EI) "Sapporo, Hokkaido, 17.VII.1964, H. Takada", "*Zele simplex* Watanabe, ♂, Det. C. Watanabe, 1969", with very peculiar middle and hind tarsal claws (figs. 393, 394), ventrally with a double lamella. Fore claw as in ♀, length of fore wing 8.6 mm, length of 1st tergite 2.5 times its apical width, weakly rugulose, further as holotype.

Homolobus (Homolobus) rugosus spec. nov.
(figs. 401—414)

Holotype. ♂, length of body 11.5, of fore wing 10.6 mm.

Head. — Remaining antennal segments 34, apical segments absent, 3rd segment 1.4 times 4th segment, length of 3rd and 4th segments 4.2 and 3.1 times their width, respectively; length of maxillary palp 1.2 times height of head; dorsal length of eye 1.5 times temple; temple roundly narrowed posteriad (fig. 409); POL : ∅ ocellus: OOL = 6: 8: 7; frons rather flat, smooth; vertex remotely punctate, rather flat (fig. 409); face rather flat, densely and coarsely punctate, with some striae dorsally; clypeus rather flat, remotely punctate; apical margin of clypeus thin, not differentiated, convex ventrally (fig. 411); length of malar space 0.4 times basal width of mandible; mandible only slightly twisted apically.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum posteriorly and ventrally rugose, antero-medially with a crenulate groove, and rest of pronotum mainly punctate (fig. 401); epicnemial area mainly smooth; precoxal suture smooth; rest of mesopleuron mainly weakly punctate; metapleural flange rounded apically, large, thick, rugose and not lamelliform (fig. 401); metapleuron coarsely rugose ventrally, and punctulate medially, anteriorly widely impressed; notauli rather narrowly crenulate (fig. 413); mesoscutal lobes punctulate; dorsal surface of propodeum coarsely transversely rugose and medial carina absent; the short posterior part of propodeum well separated from dorsal part (fig. 401), mainly smooth except for some carinae, and with a narrow areola posteriorly (fig. 414).

Wings. — Fore wing: r: 3-SR: SR1 = 12 : 11 : 58; SR1 almost straight (fig. 402); cu-a postfurcal, almost straight; 1-CU1: 2-CU1 = 2 : 26; 2-SR: 3-SR: r-m = 16 : 11 : 9; 2A scarcely sclerotized (fig. 402); area basally of 2A mainly bare (fig. 407). Hind wing: r absent; SC+R1 short, straight, somewhat widened anteriorly (fig. 404); hamuli separated from the mainly absent R1 (fig. 412).

Legs.— Hind coxa weakly punctate, with some striae apically, and ventrally, more coarsely punctate (fig. 410); tarsal claws bifurcate, because of a large sharp

subapical tooth, which is situated at the inner side of the claw, only fore claws somewhat pectinate (fig. 406); length of femur, tibia and basitarsus of hind leg 5.8, 9.9, and 7.0 times their width, respectively; length of spurs of hind tibia 0.6 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 2.9 times its apical width, its surface coarsely rugose (fig. 414); dorsal carinae of 1st tergite present in its basal fifth; 2nd tergite rugose (fig. 414).

Colour. — Brownish-yellow; face, ventral third of temple, and eye margins dorsally, whitish-yellow; head dorsally, antenna basally (except annellus), apex of metasoma, most wing veins, dark brown; middle and hind tarsi (except telotarsi), white; wing membrane hyaline; pterostigma brown.

Holotype in MNHN, Paris: "Madagascar Est, Marojejy, rés. nat. int. XII, Anjanaharibe S., 1600 m, III.1961, P. Soga".

Note. — Because the female is unknown, the inclusion of this species in the subgenus *Homolobus* is only tentative. The other possibility is the subgenus *Oulophus*, but because it does not fit well in there and the subgenus *Oulophus* is unknown from the Afrotropical region, I prefer to include it in the subgenus *Homolobus*. *H. rugosus* is a peculiar species because of the remarkable combination of apomorphous character-states (e.g., the shape of SC+R1, the reduced R1, the separated hamuli, the large ocelli and antescutal depression, and smooth precoxal suture) and of plesiomorphous character-states (e.g., the bifurcate claws, the separated areolated posterior part of propodeum, the thick, non-lamelliform metapleural flange, the presence of the dorsal carinae of the 1st tergite, and the sculptured 2nd tergite).

Homolobus (Homolobus) cingulatus (Granger) comb. nov.
(figs. 415—430)

Granger, 1949, Mém. Inst. scient. Madagascar 2A: 378, fig. 382 (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 223.

Lectotype, ♀, length of body and of fore wing both 6.6 mm.

Head. — Remaining antennal segments 29, apical segments absent, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 4.1 and 3.7 times their width, respectively; length of maxillary palp 1.3 times height of head; dorsal length of eye 2.3 times temple; temple directly narrowed posteriad (fig. 429); POL : ∅ ocellus : OOL = 6 : 9 : 8; frons rather flat, with some short crenulae; vertex punctulate, rather flat (fig. 429); face rather flat, punctate, dorsally somewhat rugose; clypeus punctulate, rather flat; apical margin of clypeus thin, not differentiated, convex ventrally (fig. 430); length of malar space 1.1 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum crenulate antero-medially, rugose ventrally and posteriorly, and punctate dorsally (fig. 416); epicnemial area rugose; precoxal suture widely punctate-rugose; rest of mesopleuron finely punctate (fig. 416); metapleural flange large, thick, rugose, narrowly lamelliform apically, rather round apically (fig. 416); metapleuron punctulate medially, rugose ventrally and posteriorly; notauli rather narrowly

crenulate (fig. 421); mesoscutal lobes punctulate; dorsal surface of propodeum almost smooth anteriorly, reticulate-rugose medially and posteriorly areolated, enclosed areas mainly smooth; posterior part of propodeum not separated (fig. 416); medial carina of propodeum absent.

Wings. — Fore wing: r : 3-SR : SR1 = 9 : 15 : 71, SR1 straight; cu-a interstitial in left wing, shortly postfurcal in right wing (fig. 418) and 1-CU1 : 2-CU1 = 1 : 15; 2-SR : 3-SR : r-m = 16 : 15 : 11; 2A shortly sclerotized basally (fig. 418); area basally of 2A mainly bare, except distally (fig. 419). Hind wing: r absent; SC + R1 weakly curved (fig. 425); hamuli at R1.

Legs. — Hind coxa finely rugose dorsally, laterally and ventrally punctate; tarsal claws with small subapical tooth, which is somewhat more developed than in *inopinus* and well visible at 80× (fig. 426), pectinate basally, except inner hind claw (fig. 427); length of femur, tibia and basitarsus of hind leg 6.9, 10.5 and 8.8 times their width, respectively; length of spurs of hind tibia 0.7 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.2 times its apical width, its surface smooth basally and its posterior half rugulose (fig. 428); dorsal carinae of 1st tergite absent; 2nd tergite smooth; length of ovipositor sheath 0.17 times fore wing, slender, and almost as long as apical height of metasoma (fig. 416).

Colour. — Light reddish-brown; palpi (except for 6th segment of maxillary palp), tarsi, apices of tibiae and trochanters partly, hind coxa apically, more or less infuscated; pterostigma and wing veins, brown; metasoma black, except for the 2nd tergite and base of the 3rd tergite, which are white.

Lectotype in MNHN, Paris: "Madagascar, Ankaratra, alt. 1800 [m]", "1/1'40", "Muséum Paris, A. Seyrig", "44" (= antennal segments), "Type". Lectotype herewith selected and labelled accordingly. Paralectotypes examined: 1 ♀ and 8 ♂, of which at least the ♀ belongs to the new species *inopinus*. Additional specimens examined: (2 ♀ and 9 ♂), all from Malagasy (Andranotobaka, 1400 m, Ambatolampy; Ampitameloka, 840 m, Sud Moramanga) (MNHN, RMNH). Variations: Length of fore wing 5.3—6.7 mm; length of 4th segment of labial palp 4.3—5.0 times 3rd segment; length of ovipositor sheath 0.14—0.17 times fore wing; some males have the flagellum dark brown.

Note. *H. cingulatus* as defined in this paper is easily recognizable if females are present, because of the comparatively long and slender ovipositor sheath, combined with the whitish 2nd tergite and rather long malar space. The male of *inopinus* is unknown and may be confused with the males of *cingulatus*, but *cingulatus* may be separated by the somewhat longer 4th segment of the labial palp compared with the 3rd segment (length of 4th segment of labial palp 4.3—5.0 times its 3rd segment in *cingulatus*, and 3.5—4.0 times in *inopinus*).

Homolobus (Homolobus) inopinus spec. nov.
(figs. 431—443)

Holotype, ♀, length of body and of fore wing both 7.1 mm.

Head. — Remaining antennal segments 37, but apical segments absent, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 4.4 and 3.8 times

their width, respectively; length of maxillary palp 1.5 times height of head; dorsal length of eye 2.4 times temple; temple directly narrowed posteriad (fig. 442); POL: ∅ ocellus: OOL = 3 : 5 : 5; frons weakly concave, with some rugae; vertex rather flat, punctulate; face rather flat, weakly punctate; clypeus convex basally, weakly punctate; apical margin of clypeus not differentiated, straight medio-ventrally (fig. 437); length of malar space 1.1 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum crenulate antero-medially, punctulate dorsally, and rugose posteriorly and ventrally (fig. 431); epicnemial area mainly rugose; precoxal suture rather coarsely and widely reticulate-rugose; rest of mesopleuron densely punctulate, more punctate near pleural suture; metapleural flange rather large, rounded and lamelliform apically (fig. 431); metapleuron rugose ventrally, punctulate dorsally; notauli narrowly crenulate anteriorly, widely crenulate posteriorly (fig. 438); mesoscutal lobes finely and densely punctulate; surface of propodeum reticulate-rugose anteriorly, only medially remotely reticulate posteriorly, with a short medial carina anteriorly, its posterior part not separated (fig. 431).

Wings.— Fore wing: r : 3-SR : SR1 = 11 : 16 : 74; SR1 straight; cu-a straight, postfurcal; 1-CU1 : 2-CU1 = 1 : 17; 2-SR : 3-SR : r-m = 18 : 16 : 12; 2A shortly sclerotized basally (fig. 435); area basally of 2A mainly bare (fig. 436). Hind wing: r absent; SC + R1 weakly curved (fig. 434); hamuli at R1.

Legs. — Hind coxa coarsely (but basally rather weakly) punctate; tarsal claws with a minute subapical tooth, scarcely visible at 80 × (figs. 439, 443); length of femur, tibia and basitarsus of hind leg 6.7, 9.7, and 9.2 times their width, respectively; length of inner spur of hind tibia 0.7 times basitarsus.

Metasoma. — Length of 1st tergite 2.9 times its apical width, its surface rather shallowly reticulate-rugose, but medially and basally smooth (fig. 441); dorsal carinae of 1st tergite absent; 2nd tergite smooth; length of ovipositor sheath 0.06 times fore wing, somewhat widened apicad, distinctly shorter than apical height of metasoma (fig. 431).

Colour. — Light reddish-brown; tarsi and tibiae somewhat infuscated; antenna (except scapus, pedicellus, and apex of antenna), palpi, hind trochanters, and pterostigma, more or less dark brown; 1st tergite, 3rd tergite mainly and following posterior part of metasoma, black; basal half of metasoma (except 1st tergite) yellowish-white.

Holotype in MNHN, Paris: "Madagascar, Bekily, Reg. Sud. de l'Ile", "Muséum Paris, IV.38, A. Seyrig", "*Zele cingulatus* Gr., B. Sigwalt". This specimen is also a paralectotype of *cingulatus*; I have selected the other ♀ as lectotype of *cingulatus* because it agrees better with the original description ("tarière aussi longue que le metatarse postérieur"). Paratype: 1 ♀ (RMNH), "La Mandraka, 1250 m, Manjakandria, 30.X.56, A.R."; length of fore wing 5.3, of body 6.1 mm; length of ovipositor sheath 0.09 times fore wing; precoxal suture extensively rugose-punctate; length of 4th segment of labial palp 4.0 times 3rd segment; length of malar space 1.2 times basal width of mandible; antennal segments 46; length of both penultimate segments of antenna 1.9 times their width; propodeum only weakly sculptured.

Homolobus (Homolobus) ethiopicus spec. nov.
(figs. 444—457)

Holotype, ♀, length of body 7.2, of fore wing 6.9 mm.

Head. — Antennal segments 44, but apical segments missing, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 4.4 and 3.6 times their width, respectively; length of maxillary palp 1.4 times height of head; dorsal length of eye 3.5 times temple; temple directly narrowed posteriad (fig. 456); POL : ∅ ocellus : OOL = 6 : 10 : 11; frons weakly concave and somewhat rugose; vertex almost flat, punctulate-coriaceous (fig. 456); face weakly convex, coriaceous, dorsally and medially rugose clypeus remotely punctate, rather convex; apical margin of clypeus thin, weakly differentiated from clypeus, and weakly convex ventrally (fig. 445); length of malar space 0.8 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum densely reticulate-rugose, medio-anteriorly crenulate and dorsally punctulate (fig. 444); epicnemial area rugose-punctate; precoxal suture coarsely punctate-reticulate; rest of mesopleuron punctate; metapleural flange large, narrowly lamelliform and rather sharp apically (fig. 444); metapleuron punctate medially, ventrally reticulate, and dorsally more punctulate; notauli anteriorly narrowly, and posteriorly widely crenulate (fig. 454); mesoscutal lobes densely punctulate; surface of propodeum largely densely reticulate-rugose, anteriorly almost smooth, medial carina absent, and its posterior part not separated (fig. 444).

Wings. — Fore wing: r : 3-SR : SR1 = 6 : 8 : 39; SR1 straight; cu-a almost straight, shortly postfurcal; 1-CU1 : 2-CU1 = 1 : 17; 2-SR : 3-SR : r-m = 10 : 8 : 6, basal half of 2A sclerotized (fig. 446); area basally of 2A bare (fig. 449). Hind wing: r absent; SC + R1 somewhat curved (fig. 448); hamuli at R1.

Legs. — Hind coxa densely coriaceous-rugose dorsally, laterally punctate; tarsal claws with a small subapical tooth, well visible at 80 × (figs. 452, 455), setose; length of femur, tibia and basitarsus of hind leg 6.4, 9.2, and 8.7 times their width, respectively; length of spurs of hind tibia 0.7 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 3.0 times its apical width, its surface rugulose (fig. 457); dorsal carinae of 1st tergite absent; 2nd tergite smooth; length of ovipositor sheath 0.07 times fore wing.

Colour. — Reddish-brown; antenna (but annellus and apical half of antenna more light brown), mandibles, base of palpi, propleuron, pronotum ventrally, face sublaterally, stemmaticum, vertex medially, occiput (except near eyes), temples posteriorly, metasoma (but 1st tergite, except for its apex, more reddish-brown; ventral half of metasoma and sides of 2nd notum, yellowish-brown), tegula medially, pterostigma, wing veins, fore and middle coxae, trochanters, and femora, middle tibia, telotarsi, hind coxa posteriorly, hind trochanters, femur, and tibia, more or less dark brown; palpi except for their bases, yellowish.

Holotype in CNC, Ottawa: "Tanganyika, W. Usambara Mts., 1600 m, Lushoto, II. 1962". Paratypes: (2 ♀ and 1 ♂), 1 ♀ (BM): "E. Cape Prov., Katberg, 4000 ft, 1—12.iii.1933", "S. Africa, R. E. Turner, Brit. Mus., 1933-198"; 1 ♀ (TC): "Mpendle, Natal, XII-3-70, S. Afr., H. & M. Townes"; 1 ♂ (TC, allotype), topotypic with ♀ from Natal. Variation: Length of fore wing 6.2—6.9 mm; length

of malar space 0.8—1.3 times basal width of mandible; length of 1st tergite 2.4—3.0 times its apical width; length of ovipositor sheath 0.07—0.08 times for wing; hind and middle claws of ♂ virtually without subapical tooth (as in *cingulatus*); sometimes only coxae, propleuron (partly), pronotum ventrally and metasoma (except for 1st tergite), dark brown.

Homolobus (Homolobus) discolor (Wesmael) comb. nov.
(figs. 169, 170, 458—466, 885—887)

Wesmael, 1835, Nouv. Mém. Acad. Brux. 9: 162 (as *Phylax*).
Snellen van Vollenhoven, 1858, in Herklots: Bouwstoffen Fauna Nederland 2: 282 (*Phylax aestivalis*). **Syn. nov.**
Watanabe, 1969, Proc. ent. Soc. Wash. 71: 319, 320, fig. 3.
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 223.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 230, 231.
Čapek, 1975, Biologia 30(11): 819.
Tobias, 1976, Opr. Fauna SSSR 110: 131, fig. 39:1.

Lectotype, ♀, length of body 6.1, of fore wing 6.8 mm.

Head. — Remaining antennal segments 38, apical segments missing, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 4.0 and 3.6 times their width, respectively; length of maxillary palp 1.7 times height of head; dorsal length of eye 2.4 times temple; temple directly narrowed posteriad (fig. 458); POL : ∅ ocellus : OOL = 6 : 6 : 6; frons almost flat and smooth, with some striae laterally; vertex smooth, weakly convex; face rather flat, coriaceous laterally and superficially transversely rugose (fig. 461); clypeus rather flat, smooth, except for some punctulation; apical margin of clypeus not differentiated, thin, slightly convex ventrally (fig. 461); length of malar space 0.6 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum smooth, except for some medial crenulae and rugae posteriorly (fig. 459); epicnemial area smooth; precoxal suture smooth, mainly absent; metapleural flange medium-sized, lamelliform, round apically (fig. 459); metapleuron almost smooth; notauli indistinctly crenulate (fig. 170); mesoscutal lobes indistinctly punctulate; surface of propodeum mainly smooth, except for some short carinae posteriorly and a short medial carina anteriorly, its posterior part not separated from antero-dorsal part (fig. 459).

Wings. — Fore wing: r : 3-SR : SR1 = 10 : 22 : 91; SR1 almost straight (fig. 460); cu-a weakly inclivous, postfurcal; 1-CU1 : 2-CU1 = 2 : 21; 2-SR : 3-SR : r-m = 23 : 22 : 11; 2A shortly sclerotized basally (fig. 460); area basally of 2A bare. Hind wing: r present; 2A faintly indicated by pigmentation (fig. 460); SC + R1 rather curved (fig. 460); hamuli at R1.

Legs. — Hind coxa smooth; tarsal claws with a small, sharp, subapical tooth (fig. 465), setose; length of femur, tibia, and basitarsus of hind leg 6.9, 10.3, and 9.0 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 1.9 times its apical width, its surface smooth, except for some microsculpture laterally (fig. 466); dorsal carinae of 1st tergite faintly indicated in front of spiracles; 2nd tergite smooth; length of ovipositor sheath 0.10 times fore wing.

Colour. — Dark brown; body more or less yellowish-brown ventrally; mandibles (mainly), palpi, legs (except apical 0.6 of hind tibia), and upper hind corner of side of pronotum, yellow; dorso-apical 0.6 of hind tibia brown.

Lectotype in KBIN, Brussels: "Coll. Wesmael", "1877", "*Phylax discolor* mihi, ♀, dét C. Wesmael", "Type". The type-locality is the surroundings of Brussels. Lectotype herewith selected and labelled accordingly. There are two paralectotypes, ♀, with the same labels as the lectotype. There is a further ♀ in the Wesmael Collection which does not belong to the type-series ("4 Jl. 1852, Rouge-etoitre"). Additional specimens examined (82 ♀, males are unknown) from Finland (Helsinki; Degerö, Hels.), Sweden (Höör, Skåne), Denmark (Klaekket; Mølbaek; Bukke, Skov.; Tandby; Satruphole; Sondby), England (Dorking, Surrey; Box Hill, Surrey), Ireland (Saggart, Co. Du.; Carrowgarry, Co. Sl.; Trawalua, Co. Sl.), Netherlands (Plasmolen, Z.L.; E. bank Wijde Aa, nr. Woubrugge; Wijster; Oisterwijk; Asperen; Naardermeer, at light; Crailo, at light; Asselt, at light; Ede; Flevopolder), West Germany (Wiesen, Spessart; Geierlambach; Reither Alm, 850 m; Mainz; Ellmau, ca. 1050 m; Tegernsee; nr. Reval), East Germany (Thüringen), Austria (Styr., Podčetrtek), Switzerland (Mülenen, 800 m), USSR (Irkutskaja obl., garden), Japan (Kamikochi; Kyoto, Honshu) (RMNH, HC, CNC, TC, ZMH, ZMB, ZSB, UZM, ITZ, EI, ZIL, USNM, WHC). Variation: Length of fore wing 7.2—8.9 mm, antennal segments 43—48; length of 1st tergite 2.1—2.2 times its apical width; length of ovipositor sheath 0.09—0.12 times fore wing; anterior half of vein r of hind wing sometimes absent; cocoon whitish. The only known host of the specimens examined is *Odontopera bidentata* (Clerck), which belongs to the Geometridae (Lepidoptera).

Note. The type of Snellen van Vollenhoven's *aestivalis* is lost (Van Achterberg, 1974a: 23), but as already indicated in the original description it is morphologically close to *discolor*. Knowing the Dutch fauna, and considering the ability of Snellen van Vollenhoven to identify correctly despite a lack of literature, I do not hesitate to synonymize *aestivalis* with *discolor*.

Homolobus (Homolobus) dauricus Shestakov
(figs. 467—480)

Shestakov, 1940, Ark. Zool. 32A: 18.
Watanabe, 1969, Proc. ent. Soc. Wash. 71: 319, 320, figs. 1, 2 (p.p.).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 223.

Holotype, ♀, length of body 7.6, of fore wing 7.4 mm.

Head. — Antennal segments 46, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 3.9 and 3.2 times their width, respectively, length of two penultimate segments 2.0 and 2.4 times their width; length of maxillary palp 1.4

times height of head; dorsal length of eye 2.0 times temple; temple directly narrowed posteriad (fig. 474); POL : ∅ ocellus : OOL = 3 : 7 : 4; frons rather flat and smooth; vertex rather flat, punctulate-coriaceous (fig. 474); face rather flat, laterally coriaceous, dorso-medially punctate-rugose and ventro-medially punctate; clypeus weakly convex, remotely punctate; apical margin of clypeus not well differentiated, thin, almost straight medially (fig. 479); length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum coarsely crenulate medially and posteriorly, and striate ventrally (fig. 467); epicnemial area crenulate; precoxal suture punctulate as rest of mesopleuron, mainly absent; metapleural flange large, lamelliform, wide, and round apically; metapleuron punctulate, but rugose-carinate; notauli coarsely and narrowly crenulate (fig. 473); mesoscutal lobes densely punctulate; surface of propodeum smooth anteriorly, medially coarsely transversely rugose and with a suboval areola and costal carinae present (cf. fig. 352), its posterior part not separated from antero-dorsal part (fig. 467).

Wings. — Fore wing: r : 3-SR : SR1 = 5 : 11 : 40; SR1 slightly curved (fig. 469); cu-a somewhat inclivous, but posteriorly curved basad (fig. 469), postfurcal; 1-CU1 : 2-CU1 = 1 : 17; 2-SR : 3-SR : r-m = 10 : 11 : 6; 2A well-developed and sclerotized basally (fig. 469); area basally of 2A mainly bare. Hind wing: r present; SC + R1 evenly curved (fig. 480); hamuli at R1.

Legs. — Hind coxa punctulate; tarsal claws with a small subapical tooth (figs. 475, 476), indistinctly yellowish pectinate, except inner hind claw; length of femur, tibia, and basitarsus of hind leg 5.9, 10.8, and 8.8 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 1.7 times its apical width, its surface smooth, but posterior half weakly and irregularly rugose (fig. 478); dorsal carinae weakly developed in front of spiracles; 2nd tergite smooth; length of ovipositor sheath 0.39 times fore wing.

Colour. — Dark reddish-brown; pterostigma dark brown; palpi, dorso-apical corner of pronotum, and tegulae whitish-yellow; fore and middle legs, light yellowish; eye margin dorsally, vertex, metapleuron mainly, and hind leg mainly, brownish-red; trochanter yellowish and apical two-thirds of hind tibia dark brown; hind tarsus and spurs, reddish; apical third of antenna light brown.

Holotype in NR, Stockholm: "Vladivostok, Sedanka, Malaise/ 10/8.30", "*Homolobus dauricus* sp. n. typ., det. Shestakov", "402, 77", "Riksmuseum Stockholm". Additional specimens examined: (1 ♀ and 2 ♂, EI) from Japan (Hirakura, Mie Honshu; Hikosan, Kyushu; Sapporo, Hokkaido). Length of fore wing of ♀ 8.4 mm, and length of ovipositor sheath 0.36 times fore wing.

Subgenus **Phylacter** Reinhard

Wesmael, 1835, Nouv. Mém. Acad. Brux. 9: 159 (as *Phylax* nec Dahl, 1823).
Reinhard, 1863, Berl. ent. Z. 7: 248 (nom. nov. for *Phylax* Wesmael).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 221.

Type-species: *Rogas annulicornis* Nees.

Synonym: *Phylax* Wesmael, 1835 nec Dahl, 1823.

Diagnosis. — Length of body 6.0—10.9, of fore wing 6.3—11.5 mm, antennal segments 46—55, its 3rd-6th segments of ♀ without a longitudinal ridge; length of 4th segment of labial palp 2.6—3.1 times 3rd segment; length of maxillary palp 1.5—1.6 times height of head; apical margin of clypeus rather convex, not differentiated from clypeus (figs. 487, 500, 509); length of malar space 0.5—1.0 times basal width of mandible; eyes weakly emarginate (figs. 487, 500); temples slightly roundly narrowed posteriad (figs. 321, 490, 499); length of hind femur 7.1—8.1 times its width; claws with a rather wide subapical tooth (fig. 491), or with a posteriorly sharp ventral lamella (figs. 498, 510); inner hind claw of ♀ convex and setose basally (figs. 491, 502); hind telotarsus of ♀ setose near base of inner hind claw; apices of hind tibial spurs of ♂ sharp and hyaline apically (cf. fig. 317); 1A + 2A of fore wing straight (figs. 485, 496); basal third of SR of hind wing more (fig. 494) or less (fig. 484) sclerotized and curved (fig. 507); r of hind wing absent; SC + R1 distinctly curved (figs. 482, 495, 507); length of 1st tergite 2.6—4.8 times its apical width; length of ovipositor sheath 0.12—0.25 times fore wing; posterior part of propodeum not or slightly separated from antero-dorsal part of propodeum (figs. 481, 492, 503).

Distribution. — The subgenus *Phylacter* is only known with certainty from the Palaearctic region, if the Himalayan area is considered to be an extension of the Palaearctic region. One species has a mainly more northern distribution (*annulicornis*), while the other two species are restricted to the South of the Palaearctic region. I have examined a ♂ from Indonesia (Idjen) which may belong to a species close to *annulicornis*.

Key to the species of the subgenus *Phylacter*

1. Tarsal claws bifurcate, the subapical tooth large and in ♀ truncate apically (figs. 488, 491); length of ovipositor sheath 0.12—0.16 times fore wing (fig. 481); South East Palaearctic . . . . . *bifurcatus* spec. nov. (p. 322)
— Tarsal claws with a subapical sharp and tooth-shaped ventral lamella (figs. 498, 510); length of ovipositor sheath 0.17—0.25 times fore wing (figs. 492, 503) 2
2. Vein 2-SC + R of hind wing transverse, longer than wide (fig. 495) or quadrate; base of hind tarsus more yellowish basally than medially, 2nd—4th segment whitish, contrasting with hind tibia; mainly North and Middle Palaearctic . . . . . *annulicornis* (Nees) (p. 324)
— Vein 2-SC + R of hind wing vertical, wider than long (fig. 507); hind tarsus equally whitish-yellow, only weakly contrasting with hind tibia; South West Palaearctic . . . . . *meridionalis* spec. nov. (p. 326)

Homolobus (Phylacter) bifurcatus spec. nov.
(figs. 285, 286, 481—491)

Holotype, ♀, length of body 9.7, of fore wing 9.6 mm.

Head. — Antennal segments 41, but apical segments missing, 3rd segment 1.3

times 4th segment, length of 3rd and 4th segments 4.1 and 3.2 times their width, respectively; length of maxillary palp 1.5 times height of head; dorsal length of eye 2.2 times temple; POL : ∅ ocellus : OOL = 5 : 5 : 6; frons en vertex almost flat and smooth; face mainly flat and slightly punctulate; clypeus convex and punctulate (fig. 487); length of malar space 0.7 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum dorsally smooth, medially and postero-ventrally crenulate-rugose (fig. 481); epicnemial area weakly rugose; precoxal suture largely crenulate-rugose, posteriorly almost smooth (fig. 481); rest of mesopleuron smooth; metapleural flange large, lamelliform, wide and rounded apically (fig. 481); metapleuron largely smooth, rugose ventrally and crenulate anteriorly; notauli closely crenulate (fig. 286); mesoscutal lobes punctulate; surface of propodeum rugose posteriorly and laterally, antero-medially mainly smooth, with a medium-sized carina; this antero-medial carina is divided posteriorly, enclosing a triangular area, its base formed by a lamelliform transverse carina apically.

Wings. — Fore wing: r : 3-SR : SR1 = 9 : 15 : 52; SR1 curved (fig. 484); cu-a almost straight, postfurcal; 1-CU1: 2-CU1 = 3 : 23; 2-SR : 3-SR : r-m = 12 : 15 : 9; 2A shortly sclerotized basally (fig. 484); area basally of 2A remotely setose (fig. 485). Hind wing: SR rather shortly sclerotized basally (fig. 482); 2-SC+R transverse (fig. 484).

Legs. — Hind coxa punctulate; tarsal claws with a large and truncate subapical tooth (figs. 488, 491), outer claws yellowish pectinate basally, inner claws only setose basally; length of femur, tibia, and basitarsus of hind leg 7.1, 10.7 and 10.4 times their width, respectively; length of spurs of hind tibia 0.6 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 4.8 times its apical width, its surface mainly smooth, laterally somewhat microsculptured (fig. 489); dorsal carinae of 1st tergite present in front of spiracles; length of ovipositor sheath 0.14 times fore wing.

Colour. — Brownish-yellow; stemmaticum and its surroundings, and areola, dark brown; hind tarsus evenly yellowish-white, contrasting with hind tibia; pterostigma light brown.

Holotype in NR, Stockholm: "N.E. Burma, Kambaiti, 2000 m, 21/5.1934, Malaise", "Riksmuseum Stockholm". Paratypes: (4 ♀ and 4 ♂) from Burma (1 ♀ and 2 ♂, topotypic: 1 ♂, 28/5, 34, 7000 ft (allotype, NR); 1 ♀, 13—22.VI,1934, 7000 ft (RMNH); 1 ♂, 8.V.1934, 7000 ft (NR)), India (2 ♂, "United Prov., India, 1949, F. Bianchi" (TC); 1 ♀, "India, H.P., Kalalop, 2138 m, 7.VI.1971, Kamilko, DH 79" (DZD)), and Nepal (2 ♀, "27°58′N, 85°00′E, Nepal, 11100 ft, 7 June 1967, Can. Nepal Exp.", "*Zele* Det. W. R. M. Mason" (CNC)). Variation: Length of fore wing 9.0—11.5 mm; antennal segments 49—54; length of malar space 0.7—1.0 times basal width of mandible; length of ovipositor sheath 0.12—0.16 times fore wing; length of 1st tergite 3.7—4.7 times its apical width; frequently middle of mesoscutal lobes dark brown or blackish; 2-SC+R quadrate or transverse; subapical tooth of tarsal claw of ♂ more sharp apically than in ♀.

Homolobus (Phylacter) annulicornis (Nees) comb. nov.
(figs. 315—318, 492—502)

Nees, 1834, Hym. Ichn. affin. mon. 1: 201 (as *Rogas*).
Haliday, (1835) 1836, Ent. Mag. 3:141, 142 (as *testaceator* (nec Curtis, 1832!)).
Wagner, 1928, Verh. Ver. naturw. Unterh. Hamb. 20: 10.
Watanabe, 1969, Proc. ent. Soc. Wash. 71: 319, 320, 323, fig. 6.
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 226.
Papp, 1970, Israel J. ent. 5: 65 (needs confirmation).
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 230, 231.
Čapek, 1972, Ent. Problémy 10: 133, 136.
Papp, 1973, Acta Mus. Mac. Sc. Nat. 14: 9.
Kabašinskaité & Jakimavičius, 1973, Acta ent. Lituanica 2: 80, 86.
Jakimavičius, 1976, Tr. AN Lit. SSR B2 (74): 90, 93.
Gauld & Huddleston, 1976, Entomologist's Gaz. 27: 43, fig. 20.
Tobias, 1976, Opr. Fauna SSSR 110: 133, fig. 39: 7—10.

Neotype, ♀, length of body and of fore wing both 9.7 mm.

Head. — Antennal segments 45, but apical segments missing, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segment 3.5 and 3.2 times their width, respectively; length of maxillary palp 1.6 times height of head; dorsal length of eye 1.7 times temple; POL : ∅ ocellus : OOL = 5 : 6 : 5; frons rather flat, with some microstriae laterally (fig. 499); vertex rather flat, smooth; face punctulate-rugulose, rather flat; clypeus rather flat, punctulate (fig. 500); length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum crenulate medially and posteriorly, striate ventrally and almost smooth dorsally (fig. 492); epicnemial area reticulate-rugose; precoxal suture reticulate-rugose, but almost smooth posteriorly (fig. 492); rest of mesopleuron punctulate; metapleural flange large, lamelliform, wide en rounded apically (fig. 492); metapleuron punctulate, with some crenulae ventrally; notauli almost smooth, somewhat crenulate posteriorly (fig. 316); mesoscutal lobes punctulate; surface of propodeum finely rugose, almost smooth anteriorly, medial carina absent, except for a short part anteriorly.

Wings. — Fore wing: r : 3-SR : SR1 = 10 : 14 : 55; SR1 weakly curved (fig. 494); cu-a weakly curved (fig. 494), postfurcal; 1-CU1 : 2-CU1 = 1 : 11; 2-SR : 3-SR : r-m = 13 : 14 : 8; 2A scarcely sclerotized basally (fig. 494); area basally of 2A remotely setose (fig. 496). Hind wing: 2-SC+R transverse; basal third of SR wholly sclerotized (figs. 494, 495).

Legs. — Hind coxa punctulate; tarsal claws with a subapical sharp, tooth-shaped lamella (figs. 498, 502), yellowish pectinate basally, except inner hind claw (fig. 502); length of femur, tibia, and basitarsus of hind leg 8.0, 11.2, and 10.4 times its width, respectively; length of outer spur of hind tibia 0.4 times basitarsus (in a ♀ specimen from Denmark (Klaekket) both spurs 0.5 and 0.6 times basitarsus (fig. 317)).

Metasoma. — Length of 1st tergite 3.5 times its apical width, its surface mainly smooth, but somewhat rugulose laterally (fig. 315); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.18 times fore wing.

Colour. — Brownish-yellow; stemmaticum blackish; hind tarsus (except its base and apex) contrasting with its tibia; subapical antennal segments indistinctly infuscated apically; pterostigma yellowish.

Neotype (♀!) in KBIN, Brussels: "Coll. Wesmael", "1874", "♂ *Phylax* ♀ *annulicornis* N.V. Es., dét. C. Wesmael", "Type". Collected in Belgium, in Charleroi or near Brussels, as stated by Wesmael. Because the type of Nees is lost and Wesmael is the first revisor, I designate here this specimen as the neotype of *Rogas annulicornis* Nees, 1834, the type-species of *Phylacter* Reinhard.

Additional specimens examined: (93 ♀ and 137 ♂) from Sweden (Pål.; Lund; Öland, Gårdby), Denmark (Ordrüp, Lynabg; Thali; Humlebaek; Amager; Hinde; Klaekket, Haas; Vorsö; Moens Fyr, nr. Borre; Moesgaard; Braband; Bukke, Skov.; Aakiaer; Silkehorn; Bogø; Rüs; Satruphlg; Schelde; Sathö; Aarö; Dÿrehavn; Copenhagen; Markskel, 100 m, N. Kohavegård, Østjylland, S. Vejle), West Germany (Steinebach am Wörthsee; Hüll nr. Wolnzack; Gambach, nr. Würzburg, at light, beech wood; Wiesen, Spessart; Mainz; Kiel; Worms, Rosg.; Weisskirchen, Mähren; Goslar; Niederadenau, Eifel; Fahnersche Höhe; Tübingen; Bodensee, Ueberlingen; Eisenberg; Goslar a. H., Grauhöfer Holz; Oelber a. W.; Bärenkopf; Park Allee, Eichst.; Gräfeling, Bayern; Günzburg a. D.; München; Furstwied; Harz, Eikntal; Tegernsee), East Germany (Thüringen, Blankenburg; Brünshäupten; Berlin; Ebersdorf), Austria (Leitha Mts., Donnerskirchen; Wien; Rainberg; Steinbruch, Salzburg; Styria, Pagaška, Slatina, 228 m), Switzerland (Glion, 800 m), Czechoslovakia (nr. Prague), Poland (Gdansk), USSR (Moscow; Kaunas; Vilnius, Jaansali; Azerbaijdzhan SSR, Kalajbugurt, wood), Hungary (Budapest), Ireland (Finglas, Co. Du.; Knather, Bundoran dt., Co. Ed.; Strangford, Co. Do.; Trawalua, Co. Sl.), England (Coomb Wood), Netherlands (Tegelen, De Holtmühle, Zuid-Limburg; Driebergen; Venray; Oosterbeek; Neerijnen, Waardenburg; Asperen; Venlo; Otterlo), France (La Bégude de Mazenc, Drôme), Italy (Garda L., Malcerni, 300 m), Romania (Transsylv. Alps, Cibins. Mts.), China (Manchuria, Maderschan), and Japan (Kamikochi; Kyoto, Honshu) (RMNH, ITZ, HC, CNC, TC, UZM, ZSB, ZMB, IZP, NMV, ZIL, USNM, ZI, WHC, EI, KBIN).

Variation: Length of fore wing 6.3—10.3 mm; antennal segments 48—52; length of 1st tergite 2.9—3.5 times its apical width; length of ovipositor sheath 0.17—0.22 times fore wing; metasoma sometimes infuscated apically; vein 2-SC+R of hind wing transverse or quadrate; cocoon whitish, with a more or less developed white transverse medial band. Known hosts of examined specimens: *Lithophane lamda* (F.), *Enargia ypsillon* (Denis & Schiff.), *Xestia triangulum* (Hufn.), and *Orthosia* spec., all four belonging to the Noctuidae, Lepidoptera.

Note. This species is often named *Zele testaceator* Curtis, 1832 (e.g., Nixon, 1938), but examination of the type, the original description, and the figures given by Curtis revealed its synonymy with *Zele albiditarsus* Curtis, 1832 (formerly placed in *Zemiotes* or *Meteorus*). That the correct name for this species is *annulicornis* was stated in 1918 by Bengtsson. He based his opinion solely on the original description, which is clear enough to show *testaceator* of Curtis is the female sex of *albiditarsus*, of which Curtis described only the male. In the Curtis

Collection under *testaceator*, there are 2 ♀ of *Zele albiditarsus* Curtis (of which one is the type of *testaceator*, see note under *albiditarsus*) and 3 ♂. One male without a label and two males collected after the publication of *testaceator*; these males belong to *annulicornis*, and cannot be types of *testaceator*.

Homolobus (Phylacter) meridionalis spec. nov.
(figs. 321—323, 503—512)

Holotype, ♀, length of body 9.9, of fore wing 10.3 mm.

Head. — Antennal segments 41, but apical segments missing, 3rd segment 1.3 times 4th segment, length of 3rd and 4th segments 4.1 and 3.1 times their width, respectively; POL : ∅ ocellus : OOL = 4 : 6 : 5; length of maxillary palp 1.5 times height of head; dorsal length of eye 2.0 times temple; frons rather flat, largely smooth, with some microsculpture (fig. 321); vertex rather flat, punctulate; face punctulate, somewhat rugulose near antennal sockets, rather flat (fig. 509); clypeus convex, punctulate; length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.5 times its height; side of pronotum smooth dorsally, rugulose-crenulate medially and striate ventrally (fig. 503); epicnemial area reticulate-punctate; precoxal suture largely reticulate-punctate, posteriorly almost smooth (fig. 503); rest of mesopleuron punctulate; metapleural flange large, rather thick, and sharp apically; metapleuron mainly smooth, ventrally rugose; notauli narrowly and indistinctly crenulate (fig. 323); mesoscutal lobes punctulate; anteriorly surface of propodeum mainly smooth, posteriorly coarsely reticulate (fig. 511), without medial carina.

Wings. — Fore wing: r : 3-SR : SR1 = 15 : 30 : 118; SR1 curved (fig. 506); cu-a inclivous, slightly curved posteriorly, postfurcal; 1-CU1 : 2-CU1 = 2 : 25; 2-SR : 3-SR : r-m = 25 : 30 : 17; 2A distinctly sclerotized basally (fig. 506); area basally of 2A sparsely setose (fig. 504). Hind wing: 2-SC+R vertical (fig. 507); basal third wholly sclerotized (fig. 506).

Legs. — Hind coxa punctulate; tarsal claws with an apically sharp, tooth-shaped lamella (figs. 510, 512), indistinctly yellowish pectinate basally, except inner hind claw; length of femur, tibia, and basitarsus of hind leg 8.1, 12.6, and 10.0 times their width, respectively; length of spurs of hind tibia 0.6 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 3.0 times its apical width, its surface largely smooth, laterally with some carinae and striae (fig. 511); dorsal carinae of 1st tergite absent, only behind the spiracles with a dorso-lateral carina; length of ovipositor sheath 0.20 times fore wing.

Colour. — Brownish-yellow; stemmaticum black; hind tarsus, base of hind tibia, fore and middle legs mainly, more or less whitish-yellow; hind tarsus only weakly contrasting with hind tibia.

Holotype in CNC, Ottawa: "15.V.1960, Oued Tisquite, 1650 m, 2 km NO Itrano, N. Marokko, Er. Schmidt". Paratypes: (8 ♀ and 3 ♂) from Spain (1 ♂ (UZM), "Spain, Granada, Sierra Nevada, Alb. Universitaria, 6 May 1966, 2600 m, Lyveb.-Matin-Langem."), Cyprus (1 ♂ (CNC), "24.4.53, Cypern, Pera Pcd.,

Mavromoustakis"; 1 ♀ (TC), "Limasol, Cyprus, 23.12.1946, Mavromoustakis"), and France (1 ♀ (RMNH), "44°06'N, 6°15'E, Digne, 650—750 m, 6-11.VI.1967, J. B. Wolschrijn"; 7 ♀ and 1♂ (ITZ, RMNH), "France, Var., Grimaud, B. J. Lempke & K. Straatman"; collected between 11-19.X.1971). Variation: length of fore wing 7.8—10.0 mm; antennal segments 46—50; length of ovipositor sheath 0.20—0.22 times fore wing; length of 1st tergite 3.0—3.1 times its apical width; propodeum sometimes with an irregular medial carina.

Note. This new species seems to have escaped attention because it occurs in spring (April, May), early summer (beginning of June), late autumn (October), or winter (December), while *annulicornis* is most frequently captured in July and August, and less frequently in May, June, and September, although I saw some exceptional captures of *annulicornis* from April, October and November. *H. meridionalis* seems to replace the closely related *annulicornis* in the Mediterranean Region.

Subgenus **Oulophus** nov.

Etymology: From "οὐ" (Greek for "not") and "λοφος" (Greek for "ridge"), because the antennal ridge of the ♀ is not distinctly developed. Gender: masculine.

Type-species: *Homolobus armatus* spec. nov.

Diagnosis. — Length of body 5.8—9.9, of fore wing 5.4—11.5 mm; antennal segments 40—54, its 3rd—6th segments of ♀ usually without a longitudinal ridge, if exceptionally present (fig. 720), then rather weakly developed; length of 4th segment of labial palp 2.2—7.0 times 3rd segment; length of maxillary palp 1.2—1.9 times height of head; apical margin of clypeus rather convex (fig. 525) or almost straight (fig. 549) medially, not (fig. 525) or distinctly (fig. 550) differentiated from clypeus; length of malar space 0.3—1.3 times basal width of mandible; eyes weakly emarginate (figs. 525, 572, 645, 675); temples directly (fig. 677) or weakly roundly narrowed (fig. 722) posteriad; length of hind femur 5.8—7.6 times its width; claws with a large (fig. 524) or small (fig. 534) subapical tooth, or with a narrow, apically sharp, tooth-shaped lamella ventrally (figs. 522, 570); inner hind claw of ♀ convex or straight and setose basally (figs. 524, 534, 560), exceptionally bare and slightly concave (fig. 571); hind telotarsus of ♀ setose near base of inner hind claw; apices of hind tibial spurs of ♂ sharp and hyaline apically; 1A + 2A of fore wing straight (figs. 515, 591); basal third of SR of hind wing only pigmented, not sclerotized (fig. 516) or sclerotized (figs. 618, 635), straight (fig. 631) or weakly curved (fig. 641); r of hind wing present (figs. 590, 603) or absent (figs. 516, 635); SC + R1 more or less curved (fig. 683 versus figs. 539, 555) or almost straight (figs. 631, 725); length of 1st tergite 1.8—3.9 times its apical width; length of ovipositor sheath 0.07—0.77 times fore wing; posterior part of propodeum distinctly (figs. 513, 527) or not (figs. 541, 564) separated from anterodorsal part of propodeum.

Distribution. — This largest and rather diverse subgenus of *Homolobus* is widespread, but is unknown from the Afrotropical and Australian regions. In total ten out of 16 species occur in the New World, including four species restricted to

the South West Nearctic (Sonoran) area, where they seem to have evolved. In the Palaearctic region (including the Himalayan area) six species occur, one of which is Holarctic in its distribution. In the Oriental region (excluding the Himalayan area) only one species is known.

Key to the species of the subgenus *Oulophus*

1. Malar space comparatively long (figs. 525, 532), its length 1.0—1.3 times basal width of mandible; hind coxae extensively and more or less coarsely rugose (figs. 523, 527); both penultimate segments of antenna of ♀ stout (figs. 518, 531), their length 1.2—1.6 times their width; 1st tergite somewhat narrowed apicad (figs. 526, 537); antero-dorsal part of propodeum distinctly separated from its posterior part; Palaearctic 2
— Malar space comparatively short (figs. 549, 554, 595), its length 0.3—0.8 times basal width of mandible; hind coxae smooth or punctulate, at most somewhat rugose dorsally (figs. 553, 596); both penultimate segments of antenna of ♀ more slender, their length 1.7—2.9 times their width; antero-dorsal part of propodeum variable, but in most species not distinctly separated from its posterior part (figs. 553, 577) 3
2. Subapical tooth of tarsal claws comparatively stout, rather blunt and subequal to the apical tooth, resulting in sub-bifurcate claws (figs. 522, 524); body mainly black; medially propodeum mainly coarsely reticulate; vein r of hind wing absent (fig. 516) or only present as a short remnant (fig. 519); pterostigma dark brown; hind basitarsus basally black or brownish, and at least apical half of basitarsus white; vertex smooth or punctulate (fig. 520) . . . . . *carbonator* (Shestakov) (p. 330).
— Subapical tooth of tarsal claws slender, sharp, much shorter than the apical tooth (figs. 531, 536); body yellowish and/or brownish; propodeum, except for the carinae, only indistinctly sculptured (fig. 537); vein r of hind wing present, but anterior half usually indistinctly developed (fig. 539), exceptionally mainly absent; whole hind basitarsus and pterostigma yellowish; vertex coriaceous (fig. 538) . . . . . *bohemani* (Bengtsson) (p. 332)
3. Vein r of hind wing present (figs. 543, 555), at least posteriorly present as a brownish pigmented stripe 4
— Vein r completely absent (figs. 618, 635) 9
4. Ovipositor sheath short (figs. 541, 553), 0.08—0.16 times fore wing; mesonotum more or less brownish-yellow 5
— Ovipositor sheath comparatively long (figs. 577, 588, 602), 0.25—0.52 times fore wing; mesonotum mainly black 7
5. Pterostigma and parastigma of ♀ unicolorous, yellowish; hind tarsus whitish-yellow; vein r of hind wing comparatively long and strongly reclivous (figs. 525, 569); vertex smooth (fig. 568) 6
— Pterostigma and parastigma of ♀ bicolorous, yellowish and dark brown; hind tarsus brownish-yellow; vein r of hind wing short and comparatively straight (fig. 540); vertex coriaceous (fig. 550); South Nearctic . . . . .

. . . . . *bicolor* spec. nov. (p. 333)

6. Precoxal suture with some rugae antero-dorsally (fig. 553); subapical tooth of tarsal claws comparatively slender, claws weakly concave medio-ventrally (fig. 558, 560); vein cu-a of fore wing parallel to 3-CU1 (fig. 555); palpi, fore and middle legs more or less whitish-yellow; costulae of propodeum at least partly developed (fig. 553); Holarctic . . . . . *flagitator* (Curtis) (p. 334)
— Precoxal suture smooth (fig. 564); subapical tooth of claws lamelliform, rather wide (figs. 570, 571); claws straight medio-ventrally (fig. 571); vein cu-a of fore wing more inclivous than 3-CU1 (fig. 567); palpi, fore and middle legs, brownish-yellow; costulae of propodeum absent (figs. 564, 661); South Nearctic and Neotropical . . . . . *acares* spec. nov. (p. 336)
7. Apical two-thirds of hind tibia dark brown or blackish (fig. 596); vertex smooth (fig. 594); propodeum more or less rugose medially (fig. 588); pterostigma unicolorous, dark brown; surroundings of the veins 1-M and 1-CU1 of fore wing hyaline; Palaearctic 8
— Hind tibia completely brownish-yellow; vertex coriaceous (fig. 578); propodeum smooth, except fore some indistinctly developed sculpture posteromedially (fig. 577); pterostigma bicolorous, basally yellowish and medially dark brown; surroundings of the veins 1-M and 1-CU1 infuscated (fig. 580); Neotropical . . . . . *occidentalis* spec. nov. (p. 337)
8. Ovipositor sheath subequal to length of metasoma (fig. 588), its length 0.51—0.52 times fore wing; length of vein 3-SR of fore wing 1.7—2.0 times vein r of fore wing; face blackish; length of malar space 0.6—0.7 times basal width of mandible; East Palaearctic . . . . . *nipponensis* spec. nov. (p. 338)
— Ovipositor sheath much shorter than metasoma (fig. 602), its length 0.25—0.26 times fore wing; length of vein 3-SR of fore wing 1.0—1.3 times vein r of fore wing; face reddish-brown; length of malar space 0.4—0.5 times basal width of mandible; South Palaearctic . . . . . *nepalensis* spec. nov. (p. 340)
9. Basal quarter of vein SR of hind wing equally sclerotized as vein 1-M (figs. 618, 635); area basally of vein 2A of fore wing mainly bare (figs. 619, 636); precoxal suture widely sculptured (figs. 616, 633); Oriental and South Palaearctic 10
— Basal quarter of vein SR of hind wing only pigmented, not sclerotized as vein 1-M (figs. 649, 692); area basally of 2A variable, but if mainly bare, then precoxal suture mainly smooth (figs. 714, 734); New World 11
10. Vein 2-SC + R of hind wing long, transverse (figs. 618, 631); base of vein SR of hind wing straight; tarsal claws with a ventral lamella (fig. 629); antenna, hind tibia and body yellowish; Oriental . . . . . *crenulatus* spec. nov. (p. 341)
— Vein 2-SC + R of hind wing short, vertical (figs. 635, 641); base of vein SR of hind wing weakly curved; tarsal claws with a subapical tooth (fig. 638); antenna mainly dark brown, but with a medial white or yellowish ring; body and apical 0.7 of hind tibia mainly brownish-black; South Palaearctic . . . . . *annulatus* spec. nov. (p. 342)
11. Vein SC + R1 of hind wing curved (figs. 655, 669, 683); area basally of vein 2A of fore wing sparsely setose (figs. 648, 671); vein cu-a of fore wing antefurcal or

interstitial with vein 1-M, exceptionally postfurcal (figs. 649, 670); precoxal suture extensively sculptured, at least dorsally (figs. 647, 680) 12

— Vein SC+R1 of hind wing straight (figs. 716, 739); area basally of vein 2A of fore wing bare (figs. 719, 738); vein cu-a of fore wing distinctly postfurcal (fig. 716); precoxal suture usually mainly smooth (figs. 714, 734) 15

12. Length of ovipositor sheath 0.08—0.36 times fore wing, comparatively short (figs. 667, 680) or medium-sized (fig. 694); subapical tooth of tarsal claws medium-sized (fig. 678) or rather large (fig. 699); hind tarsus more whitish yellow, more strongly contrasting with the brownish tibia 13

— Length of ovipositor sheath 0.68—0.79 times fore wing, long (figs. 646, 649); subapical tarsal tooth comparatively large (fig. 656); hind tarsus and its tibia almost equally coloured, not or only weakly contrasting; South Nearctic . . . . . *armatus* spec. nov. (p. 343)

13. Head and antenna brownish-yellow; base of vein SR of hind wing weakly curved (fig. 682); vein cu-a of fore wing antefurcal (fig. 698) or subinterstitial; propodeum rather coarsely and rather remotely rugose or almost smooth (figs. 680, 694); South Nearctic 14

— Head and basal half of antenna (except both basal segments partly), dark brown; base of vein SR of hind wing almost straight (fig. 669); vein cu-a of fore wing interstitial with 1-M (fig. 670) or postfurcal; propodeum partly finely and densely reticulate-rugose (fig. 667); Neotropical *obscurus* spec. nov. (p. 344)

14. Length of ovipositor sheath 0.12—0.15 times fore wing, comparatively short (fig. 680); length of vein 3-SR of fore wing less than twice vein r of fore wing (fig. 682) . . . . . *antefurcalis* spec. nov. (p. 345)

— Length of ovipositor sheath 0.29—0.36 times fore wing, medium-sized (fig. 694); length of vein 3-SR of fore wing more than twice vein r of fore wing (fig. 698) . . . . . *mesoxiphius* spec. nov. (p. 346)

15. Length of fore wing of ♀ ca. 1.3 times length of body (compare fig. 716 with fig. 714); inner aspect of 3rd—8th antennal segments with a rather weakly developed ridge (fig. 720); subapical tooth of claws comparatively stout (figs. 723, 734); length of ovipositor sheath ca. 0.07 times fore wing . . . . . *macropterus* spec. nov. (p. 347)

— Length of fore wing of ♀ 1.0—1.1 times fore wing (compare fig. 737 with fig. 734); antenna of ♀ without ridge; subapical tooth of claws comparatively slender (fig. 740); length of ovipositor sheath 0.13—0.14 times fore wing . . . . . *rectinervis* spec. nov. (p. 348)

Homolobus (Oulophus) carbonator (Shestakov) comb. nov.
(figs. 513—526)

Shestakov, 1940, Ark. Zool. 32A: 17 (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 222.

Holotype, ♀, length of body 7.5, of fore wing 6.1 mm.

Head. — Antennal segments 46, 3rd segment 1.4 times 4th segment, without antennal ridge, length of 3rd and 4th segments 2.9 and 2.1 times their width,

respectively, both penultimate segments 1.4 times their width (fig. 518); length of 4th segment of labial palp 4.0 times 3rd segment; length of maxillary palp 1.5 times height of head; dorsal length of eye 2.3 times temple; temple directly narrowed posteriad (fig. 520); POL : ∅ ocellus : OOL = 4 : 5 : 6; frons mainly flat, with some striae near antennal sockets (fig. 520); vertex almost flat and smooth; face weakly convex, punctulate medially, punctate laterally and punctate-striate dorsally; clypeus rather flat, remotely punctulate; apical margin of clypeus weakly convex ventrally, not differentiated (fig. 525); length of malar space 1.3 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum smooth dorsally, coarsely crenulate medially and posteriorly, superficially rugose ventrally (fig. 513); epicnemial area punctate-rugose; precoxal suture rugose dorsally, reticulate-rugose medially and punctate ventrally; rest of mesopleuron punctulate; metapleural flange large, wide, thick, without carina, rounded apically (fig. 513); metapleuron largely reticulate-rugose, more punctate medially and almost smooth dorsally; notauli well impressed, wholly crenulate, anteriorly rather narrowly; mesoscutal lobes punctulate; surface of propodeum largely coarsely rugose-reticulate, anteriorly almost smooth, medial carina present in anterior third, its posterior part well separated from somewhat shorter antero-dorsal part, and with weak tubercles laterally (fig. 513); spiracle of propodeum rather large (fig. 513).

Wings. — Fore wing: r : 3-SR : SR1=6 : 6 : 40; SR1 straight; cu-a straight, postfurcal; 1-CU1=1 : 14; 2-SR : 3-SR : r-m=32 : 24 : 23; 2A shortly sclerotized basally (fig. 516); area basally of 2A sparsely setose (fig. 515). Hind wing: r absent, but remnant present in right wing (fig. 519); 2-SC+R transverse; SC+R1 weakly curved (fig. 519); basal third of SR weakly curved and unsclerotized (fig. 516).

Legs. — Hind coxa coarsely rugose-reticulate (fig. 513); tarsal claws with a rather blunt, large subapical tooth (fig. 522, 524), yellowish and inconspicuously pectinate; length of femur, tibia and basitarsus of hind leg 6.3, 10.3, and 7.6 times their width, respectively; length of spurs of hind tibia 0.7 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 3.1 times its apical width, its surface narrowed posteriad, reticulate-rugose (fig. 526); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.15 times fore wing.

Colour. — Black; mandibles, palpi, antenna, antennal sockets, legs (except coxae, hind femur and tibia (except their bases), and hind tarsus), metasoma ventrally, 2nd tergite laterally (fig. 526), wing venation, and tegulae, brownish; hind tarsus (except the black basal half of basitarsus and brownish telotarsus) white; pterostigma dark brown; wing membrane hyaline.

Holotype in NR, Stockholm: "Vladivostok, Sedanka, Malaise/ 18/7, 30", "*Zele carbonator* sp. n. typ., det. Shestakov", "401, 77", "Riksmuseum Stockholm". Paratype: 1 ♀, topotypic (ZI), not examined. Additionally examined: 2 ♂ (DZD), "N.E. Burma, Kambaiti, 1800 m, 17/6 & 16/6, 1934, Malaise, Riksmuseum Stockholm". Variation: wing membrane somewhat brownish, base of hind tarsus only narrowly brownish; subapical tooth of tarsal claws smaller than in holotype,

still larger than in *bohemani*; vertex punctulate; vein r of hind wing completely absent; length of malar space 1.2 times basal width of mandible.

Homolobus (Oulophus) bohemani (Bengtsson) comb. nov.
(figs. 354—357, 527—539, 707)

Bengtsson, 1918, Acta Univ. lund. (2)14(32): 39, 44, 45 (as *Phylacter*).
Watanabe, 1969, Proc. ent. Soc. Wash. 71: 319, 323 (as *geminator*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 221.

Holotype, ♀, length of body 7.1, of fore wing 7.5 mm.

Head. — Remaining antennal segments 18, apical segments absent, 3rd segment subequal to 4th segment, without ridge, length of 3rd and 4th segments 3.0 and 2.9 times their width, respectively; length of 4th segment of labial palp 7 times 3rd segment; length of maxillary palp 1.4 times height of head; dorsal length of eye 1.8 times temple; temple directly narrowed posteriad, coriaceous (fig. 538); POL : ∅ ocellus : OOL = 9 : 9 : 14; frons flat, striate (fig. 538); vertex rather flat, coriaceous; face weakly convex, transversely and finely striate, especially laterally coriaceous (fig. 532); clypeus convex, punctulate; apical margin of clypeus weakly convex ventrally, thin, well differentiated; length of malar space 1.1 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum largely densely reticulate-rugose, dorsally smooth and crenulate medio-anteriorly (fig. 527); epicnemial area reticulate-rugose; precoxal suture coarsely reticulate-rugose; rest of mesopleuron largely reticulate-rugose, posteriorly almost smooth (fig. 527); metapleural flange large, rather thick lamelliform apically (fig. 527); metapleuron largely rugose-reticulate, antero-dorsally smooth; notauli finely and narrowly crenulate (fig. 535); mesoscutal lobes almost smooth; surface of propodeum coarsely areolated, the area between the carinae irregularly and rather weakly rugose, medial carina anteriorly shortly present; posterior part of propodeum well separated (figs. 527, 537).

Wings. — Fore wing: r : 3-SR : SR = 5 : 11 : 39; SR straight (fig. 529); cu-a mainly straight, apically curved basad, postfurcal (fig. 529); 1-CU1 : 2-CU1 = 1 : 9; 2-SR : 3-SR : r-m = 13 : 11 : 7; 2A absent, except for a faintly pigmented trace; area basally of 2A medially bare, posteriorly somewhat setose (fig. 533). Hind wing: posterior half of r present (fig. 529); 2-SC + R transverse; SC + R1 weakly curved (fig. 539); basal third of SR straight basally and unsclerotized.

Legs. — Hind coxa densely and rather finely reticulate-rugose (fig. 527); tarsal claws with small subapical tooth, slender, sharp, and much shorter than apical tooth (figs. 534, 536), setose basally; length of femur, tibia, and basitarsus of hind leg 6.0, 11.3, and 5.7 times their width, respectively; length of spurs of hind tibia 0.5 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 3.2 times its apical width, its surface coarsely reticulate-rugose, scarcely narrowed apicad (fig. 537); dorsal carinae of 1st tergite present in basal third; basal half of 2nd tergite somewhat pimply; length of ovipositor sheath 0.10 times fore wing.

Colour. — Brownish-yellow; palpi, tegulae, pterostigma, metasoma basoventrally, and hind tarsus, light yellowish.

Holotype in NR, Stockholm: "Sm. [=Småland]", "Bhn [=Boheman]", "*Phylacter Bohemani* Bgtn" (handwritten in pencil), "407.77", "Riksmuseum, Stockholm". Additional specimens examined: (11♀ and 14 ♂) from Finland (Perikkala; Länsi-Teisko; Lemland, Flaka; id., Apelholm), Sweden (Ljungby), West Germany (Drensfeld; Niederaudorf, Obbay., 1000 m), Kurile Islands (Uruppu), Nepal (27°58'N, 85°00'E, 11100 ft), and India (Kumaon Hills, Dhakuri, 2612 m; H.P. Dhenkund (or Dainkund), 2743 m; Ahla, H.P., 2286 m; H.P., Kalatop, 2438 m) (CNC, WHC, ZMH, EI, HC, TC, DZD, RMNH).

Variation: length of fore wing 6.3—7.8 mm; antennal segments 43—44; length of both penultimate segments 1.2—2.3 times their width, but in ♀ more stout (fig. 531), 1.2—1.6 times their width; length of malar space 1.0—1.3 times basal width of mandible; length of 1st tergite 3.0—3.9 times its apical width; length of ovipositor sheath 0.10—0.11 times fore wing: vein r of hind wing sometimes complete or only posteriorly weakly developed (fig. 357); sometimes only anterior half of precoxal suture and mesopleuron distinctly rugose; antenna frequently dark brown, except for both basal segments; sometimes hind coxa, 1st tergite, hind femur, and mesosoma mainly, rather dark brown.

Homolobus (Oulophus) bicolor spec. nov.
(figs. 540—552, 706)

Holotype, ♀, length of body 6.0, of fore wing 7.0 mm.

Head. — Antennal segments 40, 3rd segment 1.3 times 4th segment, without ridge, length of 3rd and 4th segments 4.4 and 3.4 times their width, respectively, length of both penultimate segments 1.8 and 2.1 times their width; length of 4th segment of labial palp 3.3 times 3rd segment; length of maxillary palp 1.4 times height of head; dorsal length of eye 2.4 times temple; temple directly narrowed posteriad (fig. 550); POL : ∅ ocellus : OOL= 7 : 11 : 8; frons slightly concave, mainly smooth; vertex rather flat, coriaceous; face punctulate and indistinctly aciculate, rather flat; clypeus convex, punctulate; apical margin of clypeus thin, straight medially, differentiated (fig. 549); length of malar space 0.6 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum smooth, but medio-anteriorly crenulate, posteriorly weakly rugose, and ventrally somewhat punctulate (fig. 541); epicnemial area smooth; precoxal suture, as rest of mesopleuron, smooth, except for some punctulation; metapleural flange rather large, wide, rounded apically (fig. 541); metapleuron smooth, except for some short carinae ventrally; notauli anteriorly mainly smooth, only apical third crenulate (fig. 548); mesoscutal lobes punctulate; surface of propodeum smooth, except for some rugosity laterally, medial carina and areola absent; posterior part of propodeum not separated from antero-dorsal part (fig. 541).

Wings. — Fore wing: r : 3-SR : SR1=8 : 21 : 88; SR1 straight; cu-a inclivous, postfurcal; 1-CU1 : 2-CU1=1 : 7; 2-SR : 3-SR : r-m=23 : 21 : 12; 2A well

developed and sclerotized (fig. 543); area basally of 2A bare (fig. 542). Hind wing: r present, comparatively short and rather straight (fig. 540); 2-SC+R transverse; SC+R1 rather curved (fig. 543); basal third of SR weakly curved and unsclerotized (fig. 540).

Legs. — Hind coxa punctulate; tarsal claws with a rather small subapical tooth, setose basally (figs. 545, 552); length of femur, tibia and basitarsus of hind leg 5.8, 10.7, and 7.8 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 1.8 times its apical width, its surface basally smooth, posterior half rugulose (fig. 551); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.13 times fore wing.

Colour. — Brownish-yellow; palpi, fore and middle legs (except tarsi), ovipositor sheath, tegulae, dorso-posterior corner of pronotum, whitish-yellow; stemmaticum, and veins, dark brown; parastigma and pterostigma bicolorous: base and posterior margin of parastigma and apical 0.6 of pterostigma dark brown, rest of para- and pterostigma yellowish; wing membrane slightly brownish, especially near veins.

Holotype in CNC, Ottawa: "Mex., Chis., 7200 ft, S.Crist. las Casas, 17 June 1969, Malaise trap". Paratypes: (9 ♀), topotypic (CNC, RMNH). Variation: length of fore wing 6.3—7.5 mm; antennal segments 39—43; length of ovipositor sheath 0.14—0.16 times fore wing.

Homolobus (Oulophus) flagitator (Curtis) comb. nov.
(figs. 553—563)

Haliday, 1835 (1836), Ent. Mag. 3 : 142 (*as chlorophthalmus* (nec Spinola, 1808, and Nees, 1834)).
Curtis, 1837, Guide Br. Insects: 119 (*Zele flagitator* nom. nov. for *chlorophthalmus* Haliday).
Lyle, 1914, Entomologist 47: 289, 290 (*Zele geminator* nom. nov. for *chlorophthalmus* Haliday).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 224.

Redescribed after a ♀ from Ireland, length of body 7.3, of fore wing 8.3 mm.

Head. — Antennal segments 45, 3rd segment 1.2 times 4th segment, without ridge, length of 3rd and 4th segments 3.8 and 3.2 times their width, respectively, length of both penultimate segments 1.8 and 2.0 times their width; length of 4th segment of labial palp 4.0 times 3rd segment; length of maxillary palp 1.7 times height of head; dorsal length of eye 1.9 times temple; temple directly narrowed posteriad (fig. 556); POL : ∅ ocellus : OOL= 3 : 6 : 5; frons almost flat and smooth; vertex rather flat, almost smooth (fig. 556); face rather flat, densely and finely coriaceous, with a medial tubercle (fig. 554), shiny; clypeus strongly convex, remotely punctate; apical margin of clypeus weakly convex, differentiated (fig. 554); length of malar space 0.7 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum smooth, except for some crenulae medially and some micro-striation posteriorly (fig. 553); epicnemial area almost smooth; precoxal suture smooth, except for some rugae anteriorly (fig. 553); rest of mesopleuron smooth; metapleural flange large, lamelliform, wide and rounded apically; metapleuron smooth, but ventrally

rugose; notauli rather finely crenulate (fig. 562); mesoscutal lobes smooth; surface of propodeum smooth anteriorly, medially and posteriorly superficially rugose, with a rather long medial carina anteriorly, areola weakly developed and costulae present (fig. 553); posterior part of propodeum not separated from antero-dorsal part.

Wings. — Fore wing: r : 3-SR : SR1=7 : 12 : 55; SR1 straight; cu-a strongly inclivous, postfurcal, parallel to 3-CU1 (fig. 555); 1-CU1 : 2-CU1=1 : 10; 2-SR : 3-SR; r-m=14 : 12 : 7; 2A absent except for a minute basal remnant (fig. 555); area basally of 2A sparsely setose. Hind wing: r present, comparatively long and reclivous (fig. 555); 2-SC+R transverse; SC+R1 evenly curved; basal third of SR slightly curved and unsclerotized (fig. 555), scarcely posteriorly curved distad of r.

Legs. — Hind coxa weakly punctate-rugose dorsally; tarsal claws with a comparatively slender subapical tooth, medio-ventrally weakly concave (figs. 558, 560), setose basally; length of femur, tibia and basitarsus of hind leg 7.4, 12.8, and 10.0 times their width, respectively; length of spurs of hind tibia 0.5 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 2.8 times its apical width, its surface shallowly rugulose submedially (fig. 563); dorsal carinae present in front of spiracles; length of ovipositor sheath 0.09 times fore wing.

Colour. — Brownish-yellow; stemmaticum and apical half of antenna, dark brown; palpi, fore and middle legs, hind tarsus slightly more whitish-yellow.

Holotype probably lost, not present in the Haliday Collection, Dublin, nor in the Royal Scottish Museum, Edinburgh, nor in the National Museum of Victoria, Melbourne. Redescribed after ♀ from Stelfox Collection, USNM: "45", "Amongst logs!, Drinahilly, Co. Do., A.W.S., 2.11.65", "*geminator* ♀ A.W.S.", "A.W. Stelfox Collection 1966". Because the description of Haliday is sufficient and confusion with another Palaearctic species is unlikely, the designation of a neotype is not necessary. Additional specimens examined: 74 ♀ and 51 ♂. From the Palaearctic region (including the Himalayan area): Sweden (Vmld, Ekshäred), England (Aviemore), Ireland (Hallyfort, Co. Wx.; Alerlow, Co. St.; Drinnahilly, Co. Do.; Tollymore Park, Co. Do.), West Germany (Ober-Harz, Torfhaus, ca. 800 m; Ober-Bayern, Ellmau, ca. 1050 m; Reither Alm, 850 m; Schladwohg, 1250 m), Nepal (Pulchauki, Ktmd, 8000 ft; 28°00′N, 85°00′E, 10500 ft; 27°58′N, 85°00′E, 11100 ft; 27°56′N, 85°00′E, 9900 ft), and India (H.P., Narkanda, 2700 m; Kumaon Hills, Phurkia, 3504 m; Simla Hill, H.P., Narkanda) (ZSB, USNM, HC, CNC, AC, DZD).

From the Nearctic region: Alaska (Spenard; Tsaina R.; Casio Core, Attu, Aleut.), British Columbia (Hixon; Miskatla Inlet; Falkland; Port Renfreu; Galiano Isl.; Coleman Cr.; Klemtu; Cowichan L.; Lagoon Rd.; Sooka; Beechy Head; Cumshavalnld; Alliford Bay; Terrace, airport area; Wellington; Tofino; S. Pender Isl.; Johnson L.; Mt. Arrowsmith; Ootsa; Ocean Falls; Port San Juan; Green Inlet; Metchosin; Gualicum; Murtle R.; S. Gote Y.N.P.; Zeballos R.), Alberta (Smith; Pocohontas; Brule; Hinton), Ontario (Pass Lake; Beardmore; Nakina), Quebec (Sac à l'Ours; Ct. Pope; St. Vianney; Indian House L.; Sapin), New Foundland (South Branch), Colorado (Phantom Vy., RMNP, 9400 ft), New

Hampshire (Pinkham Notch), North Carolina (Devil's Court House, Blue Ridge Parkway; Clingmans Dome, 6600 ft; Mt. Pisgah, 5000—5749 ft; Pisgah Nat. Forest, Haywood Co., Chestnut Bald, 5900 ft; Highlands, Whiteside Mt., 4900 ft, and California (Marin Co., Mill Valley; Arcata, Humboldt Co., black light trap; Lily Pond Alpine Lk., Marin Co., 1500 ft) (CAS, UCA, BM, CNC, TC, RMNH). Variation: length of fore wing 5.4—9.0 mm; antennal segments 45—49; length of 4th segment of labial palp 4.0—4.5 times 3rd segment; length of malar space 0.7—0.8 times basal width of mandible; length of 1st tergite 2.5—2.9 times its apical width; length of ovipositor sheath 0.08—0.10 times fore wing; 3rd segment of antenna of ♀ sometimes with a weakly developed ridge at the inner side; sometimes middle of mesoscutal lobes infuscated. Cocoon rather thin and whitish.

Known hosts of examined specimens all belong to the Geometridae: *Eupithecia longipalpata* Packard, *E. placidata* Packard, *E. unicolor* Hulst, *E. annulata* Hulst, *E. olivaceae* Taylor, *E. harrisonata* MacK., *Nyctobia limitata* (Walker), *N. nigroangulata* Strecker, *Oporinia pulchraria* (Minot), *Melanolophia* spec., *Campaea perlata* (Guenée) on *Betula papyrifera*, id. on *Salix* sp., *Caripeta divisata* Walker, *Entephria caesiata* Lang, and *Alcis repandata* (L.) on *Vaccinium myrtillis* L.

Homolobus (Oulophus) acares spec. nov.
(figs. 564—574, 661—663)

Holotype, ♀, length of body 9.2, of fore wing 10.2 mm.

Head. — Antennal segments 45, 3rd segment 1.3 times 4th segment, without ridge, length of 3rd and 4th segments 4.3 and 3.4 times their width, respectively, length of both penultimate segments 2.3 and 2.4 times their width; length of 4th segment of labial palp 4.0 times 3rd segment; length of maxillary palp 1.7 times height of head; dorsal length of eye 2.6 times temple; rather directly narrowed posteriad (fig. 568); POL : ∅ ocellus : OOL= 5 : 12 : 9; frons smooth, slightly concave medially; vertex flat, smooth; face rather flat, smooth laterally, indistinctly rugulose-punctate medially (fig. 572); clypeus strongly convex, punctulate; apical margin of clypeus straight medially, thin, differentiated; length of malar space 0.6 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum crenulate medio-anteriorly, rugose posteriorly, ventrally somewhat punctulate, and dorsally smooth (fig. 564); epicnemial area smooth; precoxal suture smooth, rest of mesopleuron punctulate; metapleural flange large, rather thick, wide and rounded apically; metapleuron smooth, except for some ventral carinae; notauli largely smooth, posteriorly somewhat crenulate (fig. 663); mesoscutal lobes indistinctly punctulate; surface of propodeum mainly smooth, except for some rugae (fig. 661), with a short medial carina anteriorly, without costulae and areola; posterior part of propodeum not separated from antero-dorsal part (fig. 564).

Wings. — Fore wing : r : 3-SR : SR1 = 17 : 29 : 110; SR1 weakly curved (fig. 567); cu-a more inclivous than 3-CU1 (fig. 567), somewhat curved basad apically, postfurcal; 1-CU1 : 2-CU1 = 1 : 9; 2-SR : 3-SR : r-m = 28 : 29 : 14; 2A shortly sclerotized basally (fig. 567); area basally of 2A mainly bare (fig. 566). Hind wing: r

present, comparatively long and strongly reclivous (fig. 569); 2-SC + R transverse; SC + R1 rather curved; basal third of SR rather straight, distad of r rather abruptly curved posteriad (fig. 567).

Legs. — Hind coxa punctulate, dorso-apically with some weak striae (fig. 662); tarsal claws with apically sharp, tooth-shaped lamella (fig. 570), somewhat yellowish pectinate basally, but inner hind claw bare and slightly concave basally (fig. 571); length of femur, tibia and basitarsus of hind leg 6.0, 9.6, and 7.8 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.7 times its apical width, its surface smooth anteriorly, posterior half rugulose (fig. 661); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.10 times fore wing.

Colour. — Brownish-yellow; stemmaticum blackish; hind tarsus whitish-yellow; wing membrane somewhat infuscated; wing veins partly dark brown.

Holotype in RMNH, Leiden: "Museum Leiden, N. Panama, Boquete, Alto Lino, 1300 m, 8°48'N-82°26'W, 21.1.1977, H. Wolda, at light". Paratypes: (20 ♀ and 10 ♂), 2 ♂ (CNC, RMNH), "Mex., Dgo., 9000' (ft), El Salto, 10 mi. W., 2—6 June 1964, W. R. M. Mason"; 1 ♀, id., 16 July 1964 (CNC); 1 ♀ (CNC), 1 July 1964; 1 ♀ and 1 ♂ (allotype), id., 16 July 1964 (CNC, RMNH); 1 ♂, id. 9 July 1964 (RMNH); 1 ♀ (CNC), "Mex., Dgo., 24 mi. W. La Ciudad, 7000' (ft), 25 July 1964, W. R. M. Mason"; 1 ♂ (CNC), id., 8 Aug. 1964, W. R. M. Mason; 1 ♀ (RMNH), id., 12 Aug. 1964; 1♀ id., 2 July 1964 (CNC); 1 ♀, "Mex., Dgo., 30 mi. W. La Cuidad, 6500' (ft), 25 July 1964, W. R. M. Mason" (CNC); 1 ♀, "Mex., Dgo., 3 mi. E. El Salto, 8500' (ft), 10 July 1964, W. R. M. Mason" (RMNH); 1 ♀, id., 4 July 1964 (CNC); 1 ♀, "Ramsey Cyn., 6000' (ft), 15 mi. S. Sierra Vista, Huachuca Mts., Ariz., Sternitzky, 29.IX.67" (CNC); 3 ♂, id., 29.X.1967 (CNC); 3 ♀, id., 29.X.1967 (CNC); 1 ♀, id., 28.XI.1967 (CNC); 1 ♂, id., 9.IX.1967 (RMNH); 1 ♀, id., 30.IX.1967 (CNC); 1 ♀, id., VII.1968 (CNC); 1 ♀, "Omilteme, Guerrero, 8000 ft, Aug., H.H. Smith", "Godman-Salvin Coll. 1904-1" (BM); 1 ♀, "Jalapa, Ver., Mex., VIII/1-6/61, R. & K. Dreisbach" (MSU); 1 ♀, id., IX/28-X/3/61 (MSU); 1 ♀, "Rustler Park, 8500 (ft), Chiricahua Mts., Ariz., VII-20-72, at light, J. Powell" (UCA); 1 ♀, id., VIII-20-72 (UCA).

Variation: length of fore wing 7.5—10.2 mm; antennal segments 45—48; length of ovipositor sheath 0.08—0.12 times fore wing; inner side of 3rd segment of antenna sometimes with weakly developed ridge; vein SR of hind wing sometimes as in *flagitator*, scarcely curved distad of r. I exclude from the type-series 1 ♂ from Bolivia (Coroico, 1800 m (CNC)), with white hind tarsus and the tarsal lamella less developed than in holotype.

Homolobus (Oulophus) occidentalis spec. nov.
(figs. 575—586)

Holotype, ♀, length of body 5.8, of fore wing 7.1 mm.

Head. — Antennal segments 20, but apical segments missing, 3rd segment 1.3 times 4th segment, without ridge, length of 3rd and 4th antennal segments 4.4 and 3.4 times their width, respectively; length of 4th segment of labial palp 3.8 times

3rd segment; length of maxillary palp 1.4 times height of head; dorsal length of eye 2.0 times temple; directly narrowed posteriad (fig. 578); POL : ∅ ocellus : OOL= 6 : 9 : 12; frons almost flat and smooth, but laterally somewhat rugose; vertex rather flat, coriaceous; face rather flat, coriaceous, but medio-ventral triangle smooth (fig. 585); clypeus convex, punctulate; apical margin of clypeus almost straight medially, thin, differentiated; length of malar space 0.8 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum smooth, but medio-anteriorly shortly crenulate and posteriorly rugose (fig. 577); epicnemial area smooth; precoxal suture absent; mesopleuron slightly punctulate; metapleural flange rather small and rounded apically (fig. 577); metapleuron slightly punctulate; notauli narrowly and indistinctly crenulate (fig. 584); mesoscutal lobes weakly punctulate; surface of propodeum smooth, except for some short rugae medio-posteriorly, without medial carina and areola, and its posterior part not separated from antero-dorsal part.

Wings. — Fore wing: r : 3-SR : SR1= 10 : 14 : 80; SR1 straight; cu-a postfurcal, inclivous; 1-CU1 : 2-CU1= 3 : 17; 2-SR : 3-SR : r-m= 19 : 14 : 10; 2A sclerotized basally (fig. 580); area basally of 2A bare (fig. 576). Hind wing: r present (fig. 580); 2-SC+R transverse; SC+R1 curved and rather short (fig. 575); basal third of SR weakly curved, unsclerotized (fig. 580).

Legs. — Hind coxa indistinctly punctulate; tarsal claws with a small subapical tooth (figs. 579, 582), at most somewhat yellowish pectinate basally; length of femur, tibia and basitarsus of hind leg 5.8, 11.4, and 9.4 times their width, respectively; length of spurs of hind tibia 0.5 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 1.8 times its apical width, its surface smooth, but laterally behind spiracles and posteriorly somewhat rugulose (fig. 586); dorsal carinae of 1st tergite shortly developed in front of spiracles; length of ovipositor sheath 0.43 times fore wing.

Colour. — Brownish-yellow; stemmaticum, vertex and frons medially, C+SC+R (except basally), antenna (as far as present, and without annellus), pronotum anteriorly, mesonotum and ovipositor sheath, more or less blackish; face and most wing veins, infuscated; pterostigma medially dark brown; base and apex of pterostigma yellowish; wing membrane hyaline, but near the veins 1-M and 1-CU1 infuscate (fig. 580).

Holotype in TC, Ann Arbor: "Unduavi/Corioco, Yungas La Paz, Bol., 1.2.76, 3000 m, Luis Peña".

Homolobus (Oulophus) nipponensis spec. nov.
(figs. 587—600)

Watanabe, 1969, Proc. ent. Soc. Wash. 71(3): 319, 320, figs. 1, 2 (*Zele daurica* p.p.).

Holotype, ♀, length of body 7.1, of fore wing 7.5 mm.

Head. — Antennal segments 42, 3rd segment 1.2 times 4th segment, without antennal ridge, length of 3rd and 4th segments 3.8 and 3.3 times their width, respectively, length of both penultimate segments 1.7 and 2.1 times their width;

length of 4th segment of labial palp ca. 5 times 3rd segment; maxillary palp incomplete; dorsal length of eye 1.9 times temple; temple directly narrowed posteriad (fig. 594); POL : ∅ ocellus : OOL= 7 : 9 : 12; frons flat, almost smooth; vertex almost flat and smooth; face rather flat, smooth medio-ventrally, dorsally rugose-punctate and coriaceous laterally (fig. 595); clypeus weakly convex, shallowly punctate; apical margin of clypeus weakly convex, rather thick, and not differentiated (fig. 595); length of malar space 0.7 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum aciculate ventrally, crenulate medially and posteriorly, dorsally and submedially smooth (fig. 588); epicnemial area more or less reticulate-rugose; precoxal suture mainly absent, only anteriorly somewhat depressed and with some rugae; rest of mesopleuron remotely punctulate; metapleural flange large, wide and rounded apically (fig. 588); metapleuron reticulate-rugose ventrally, almost smooth dorsally; notauli narrowly crenulate (fig. 599); mesoscutal lobes densely punctulate; surface of propodeum with areola and costulae, its surroundings almost smooth, somewhat rugulose, medial carina absent, except for a short part anteriorly; posterior part of propodeum not separated from antero-dorsal part (fig. 588).

Wings. — Fore wing: r : 3-SR : SR1= 6 : 12 : 42; SR1 slightly curved (fig. 590); cu-a somewhat inclivous, postfurcal; 1-CU1 : 2-CU1= 1 : 15; 2-SR : 3-SR : r-m= 11 : 12 : 6; 2A shortly sclerotized basally (fig. 590); area basally of 2A laterally sparsely setose, medially bare (fig. 591). Hind wing: r present, rather long (fig. 590); 2-SC + R transverse; SC + R1 curved, rather short (fig. 592); basal third of SR slightly curved and unsclerotized.

Legs. — Hind coxa remotely punctulate; tarsal claws with a small subapical tooth (figs. 597, 598), setose basally; length of femur, tibia and basitarsus of hind leg 6.6, 10.6, and 8.4 times their width, respectively; length of spurs of hind tibia 0.6 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 2.1 times its apical width, its surface rather superficially rugulose (fig. 600); dorsal carinae of 1st tergite present in basal quarter of tergite; length of ovipositor sheath 0.51 times fore wing, somewhat longer than metasoma (fig. 588).

Colour. — Blackish-brown; patch at vertex near eyes, apico-lateral corner of mesoscutum, and hind leg largely, reddish-brown; apical 0.7 of hind tibia dark brown (fig. 596); palpi, fore and middle legs, tegulae, dorso-apical corner of pronotum, margin of hypopygium, yellowish; pterostigma dark brown; apex of antenna brownish; wing membrane hyaline.

Holotype in EI, Sapporo: "Tsu Mie, Honshu, 9.XII.1962, M. Matsuura", "*Zele daurica* (Shestakov) ♀, Det. C. Watanabe, 1969". Paratypes: (1 ♀ and 2 ♂), 1 ♂ (EI, allotype), "Hirakura, Mie Honshu, 18.XI.1963, M. Matsuura", "*Zele daurica* (Shestakov) ♂, Det. C. Watanabe, 1969", antennal segments 41, length of fore wing 7.1 mm, length of malar space 0.6 times basal width of mandible, and length of 1st tergite 2.0 times its apical width; 1 ♀ (RMNH), "Sapporo, Hokkaido, 27.VIII.1965, M. Miyaz", "*Zele daurica* (Shestakov) ♀, Det. C. Watanabe, 1969", length of fore wing 7.8 mm, length of ovipositor sheath 0.52 times fore wing, length

of maxillary palp 1.5 times height of head, length of malar space 0.6 times basal width of mandible, and length of 2-SR 1.7 times r of fore wing; 1 ♂ (EI), topotypic with allotype, 11.XI.1963. The males of *nipponensis* may be easily confused with males of *dauricus*, but are recognizable by the rugose epicnemial area and more strongly developed propodeal carina of *nipponensis*.

Homolobus (Oulophus) nepalensis spec. nov.
(figs. 601—615)

Holotype, ♀, length of body 6.4, of fore wing 7.0 mm.

Head. — Antennal segments 42, 3rd segment 1.2 times 4th segment, without antennal ridge, length of 3rd and 4th segments 4.0 and 3.4 times their width, respectively, length of both penultimate segments 1.8 and 2.2 times their width; length of 4th segment of labial palp 1.2 times 3rd segment; length of maxillary palp 1.2 times height of head; dorsal length of eye 2.1 times temple; temple directly narrowed posteriad (fig. 608); POL : ∅ ocellus : POL= 3 : 5 : 5; frons almost smooth and shallowly concave; vertex rather flat, smooth; face flat, punctulate, but near antennal sockets punctate-rugose; clypeus convex, punctulate; apical margin of clypeus rather thin, not differentiated, and weakly convex medially (fig. 601); length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum medially and posteriorly crenulate, rest mainly punctulate (fig. 602); epicnemial area punctulate; precoxal suture almost absent, punctulate as rest of mesopleuron; metapleural flange rather large, lamelliform, and rounded apically (fig. 602); metapleuron shallowly punctate, and with some carinae ventrally; notauli narrowly crenulate, but anteriorly almost smooth (fig. 612); mesoscutal lobes almost smooth, somewhat punctulate; surface of propodeum smooth, except for the costulae and a rather irregular medial carina, posteriorly with an irregularly defined, elliptical areola, and posterior part of propodeum not separated from antero-dorsal part (fig. 601).

Wings. — Fore wing: r : 3-SR : SR1= 13 : 13 : 88; SR1 almost straight (fig. 603); cu-a almost straight, narrowly postfurcal; 1-CU1 : 2-CU1= 1 : 15; 2-SR: 3-SR : r-m= 18 : 13 : 8; 2A shortly sclerotized basally (fig. 603); area basally of 2A mainly bare (fig. 606). Hind wing: r present; 2-SC+R transverse; SC+R1 rather curved (fig. 607); basal third of SR almost straight, unsclerotized (fig. 603).

Legs. — Hind coxa punctulate, with some striae dorso-apically; tarsal claws with a medium-sized lamelliform subapical tooth (figs. 613, 614), setose basally; length of femur, tibia and basitarsus of hind leg 6.6, 10.3, and 8.0 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 1.8 times its apical width, its surface indistinctly and remotely rugulose (fig. 615); dorsal carinae of 1st tergite absent, except for a pair of short stubs basally; length of ovipositor sheath 0.26 times fore wing, much shorter than metasoma (fig. 602).

Colour. — Blackish-brown; head, surroundings of eye, temple, antenna (but basal half infuscated), hind trochanters, hind femur, basal third of hind tibia, its

spurs, and hind tarsus, more or less reddish-brown; fore and middle tibiae and tarsi, 1st and 2nd epipleura, brownish-yellow; palpi, fore and middle coxa and femora, dorso-posterior corner of pronotum, tegulae, and base of hind wing, yellowish-white; pterostigma and wing veins, dark brown; hind coxa dark reddish-brown; wing membrane hyaline.

Holotype in CNC, Ottawa: "27°58′N, 85°00′E, Nepal, 11100 ft, 31 May 1967, Can. Nepal Exped.", "*Homolobus*, Det. W.R.M. Mason". Paratype: 1 ♀, topotypic, 7 June 1967 (RMNH), length of fore wing 7.5 mm, length of ovipositor sheath 0.25 times fore wing; length of 3-SR 1.3 times r of fore wing; antennal segments 41, and length of malar space 0.5 times basal width of mandible.

Homolobus (Oulophus) crenulatus spec. nov.
(figs. 616—632)

Holotype, ♀, length of body 9.9, of fore wing 9.6 mm.

Head. — Antennal segments 47, 3rd segment 1.1 times 4th segment, with a rather distinctly developed ridge at the inner side (fig. 628); length of 3rd and 4th segments 4.2 and 3.8 times their width, respectively, length of both penultimate segments 2.3 and 2.6 times their width; length of 4th segment of labial palp 4.6 times 3rd segment; length of maxillary palp 1.5 times height of head; dorsal length of eye 2.6 times temple; temple directl6 narrowed posteriad (fig. 625); POL : ∅ ocellus : OOL= 8 : 11 : 8; frons almost flat and smooth; vertex rather flat, coriaceous, dull; face rather flat, punctulate-coriaceous, rather dull (fig. 620); clypeus rather convex, punctulate; apical margin of clypeus thin, straight medially and not separated (fig. 620); length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum smooth, but medially and posteriorly remotely crenulate (fig. 606); epicnemial area crenulate anteriorly, rugose posteriorly; precoxal suture deeply impressed, anteriorly widely and coarsely crenulate, medially coarsely crenulate-rugose, and posterior third mainly smooth (fig. 606); metapleural flange large, rather slender, lamelliform, narrowly rounded apically (fig. 606); metapleuron punctulate, ventrally with some coarse carinae; notauli anteriorly narrowly and posteriorly widely crenulate (fig. 632); mesoscutal lobes punctulate; surface of propodeum coarsely areolate (fig. 626), enclosed areas mainly smooth, with a medial carina anteriorly and well-developed costulae submedially; posterior part of propodeum not separated from antero-dorsal part (fig. 616).

Wings. — Fore wing: r : 3-SR : SR1 = 22 : 27 : 115; SR1 almost straight (fig. 618); cu-a almost straight, interstitial; 2-SR : 3-SR : r-m = 29 : 27 : 16; 2A shortly sclerotized basally (fig. 618); area basally of 2A bare (fig. 619). Hind wing: r absent; 2-SC+R transverse; SC+R1 rather straight and long (fig. 631); basal third of SR straight and sclerotized (fig. 618).

Legs. — Hind coxa punctulate, but postero-dorsally punctate; tarsal claws with a ventral lamella (figs. 624, 629), setose basally; length of femur, tibia, and basitarsus of hind leg 7.0, 9.9, and 8.1 times their width, respectively; length of

spurs of hind tibia 0.8 and 0.6 times basitarsus.

Metasoma. — Length of 1st tergite 3.1 times its apical width, its surface indistinctly rugulose (fig. 625); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.09 times fore wing.

Colour. — Brownish-yellow; stemmaticum black; hind tarsus somewhat whitish-yellow; wing membrane hyaline.

Holotype in BM, London: "B.N. Borneo, Mt. Kinabalu, Lumu Lumu, 5500 ft, 8:4:1929/ H.M. Pendlebury, coll. F.M.S. Museums", "Ex F.M.S. Museum, B.M. 1955-354".

Homolobus (Oulophus) annulatus spec. nov.
(figs. 633—645, 708)

Holotype, ♀, length of body 8.2, of fore wing 7.7 mm.

Head. — Antennal segments 44, 3rd segment 1.1 times 4th segment, without ridge, length of 3rd and 4th segments 3.7 and 3.3 times their width, respectively, length of both penultimate segments 2.3 and 2.9 times their width; length of 4th segment of labial palp 4.0 times 3rd segment; length of maxillary palp 1.4 times height of head; dorsal length of eye 2.5 times temple; temple directly narrowed posteriad (fig. 639); POL : ∅ ocellus : OOL= 9 : 10 : 10; frons almost smooth, except for some rugae (fig. 639), flat; vertex rather flat and coriaceous; face rather flat, punctate, coriaceous laterally, rugulose medio-dorsally and latero-ventrally (fig. 645); clypeus weakly convex, remotely punctate; apical margin of clypeus thin and straight medially, not differentiated (fig. 645); length of malar space 0.3 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.2 times its height; side of pronotum crenulate medially, rugose ventrally, posteriorly and dorsally mainly smooth (fig. 633); epicnemial area reticulate-rugose; precoxal suture widely reticulate-rugose, except posteriorly (fig. 633); rest of mesopleuron punctulate; metapleural flange lamelliform, large, wide and rounded apically; metapleuron smooth, but posteriorly reticulate-rugose; notauli coarsely crenulate (fig. 642); mesoscutal lobes punctulate; dorsal surface of propodeum mainly smooth laterally, medially and posteriorly with strongly developed carinae, medial carina absent and costulae lamelliform; posterior part of propodeum with an areola, well separated from antero-dorsal part (fig. 633).

Wings. — Forewing: r : 3-SR : SR1= 8 : 11 : 46; SR1 almost straight (fig. 635); cu-a weakly inclivous, far antefurcal; 2-M + CU1 : 1 + 2CU1= 3 : 37; 2-SR : 3-SR : r-m= 10 : 11 : 5; 2A shortly sclerotized basally (fig. 635); area basally of 2A bare (fig. 636). Hind wing: r absent; 2-SC + R short, vertical (fig. 635); SC + R1 rather straight (fig. 641); basal third of SR weakly curved and main part sclerotized (fig. 635, 641).

Legs. — Hind coxa punctulate, dorso-anteriorly punctate, and dorso-posteriorly rugose (fig. 633); tarsal claws with a medium-sized, sharp subapical tooth (figs. 638, 643); length of femur, tibia and basitarsus of hind leg 6.1, 9.7 and 7.8 times their width, respectively; length of spurs of hind tibia 0.7 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.2 times its apical width, its surface smooth anteriorly except for some rugae, and posterior half rugose (fig. 644); dorsal carinae of 1st tergite present in basal quarter of tergite; length of ovipositor sheath 0.09 times fore wing.

Colour. — Brownish-black; 13th—19th segments of antenna, base of C + SC + R and hind tarsus (only telotarsus yellowish), white; scapus, pedicellus, and apex of antenna, fore and middle legs, 1st and 2nd tergites, hind coxa, hind femur, ovipositor sheath, tegulae, vertex laterally, palpi, and all trochanters, more or less brownish-yellow; bases of all tibiae and basal half of metasoma, yellowish-white; pterostigma and wing veins, mainly dark brown.

Holotype in DZD, Delhi: "India: H.P., Ahla, 2286 m, 4.viii-16.ix.1971, M.trap, No. tr. I". Paratype: 1 ♂, allotype (DZD), "India, Simla Hill, Sangla, 2743 m, 16.vi.1972, Girish, No. G14". Length of fore wing 7.0 mm, antennal ring yellowish, basal 0.7 of 1st tergite blackish brown, length of body 7.3 mm, antennal segments 45, length of malar space 0.3 times basal width of mandible, length of 1st tergite 1.9 times its apical width, and sculpture and shape of claws as in holotype.

Homolobus (Oulophus) armatus spec. nov.
(figs. 646—660)

Holotype, ♀, length of body 8.9, of fore wing 10.3 mm.

Head. — Antennal segments 48, 3rd segment 1.3 times 4th segment, without ridge, length of 3rd and 4th segments 4.0 and 3.0 times their width, respectively, length of both penultimate segments 2.0 and 1.7 times their width; length of 4th segment of labial palp 2.8 times 3rd segment; length of maxillary palp 1.6 times height of head; dorsal length of eye 1.8 times temple; temple rather directly narrowed posteriad (fig. 653); POL : ∅ ocellus : OOL = 5 : 6 : 5; frons smooth and rather flat; vertex rather flat, almost smooth; face mainly flat, medially weakly convex, indistinctly punctulate, near antennal sockets weakly rugulose (fig. 652); clypeus convex, punctulate; apical margin of clypeus thin, almost straight medially, not differentiated; length of malar space 0.7 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum largely coarsely rugose-striate, dorsally narrowly smooth (fig. 647); epicnemial area anteriorly almost smooth, posteriorly rugose; precoxal suture widely rugose-reticulate; rest of mesopleuron punctulate; metapleural flange large, rounded and rather slender apically (fig. 647); metapleuron punctulate, with some carinae ventrally; notauli narrowly crenulate anteriorly, more widely so posteriorly (fig. 660); mesoscutal lobes indistinctly punctulate; surface of propodeum smooth, except for some rugae and an irregular transverse carina, with a short medial carina, areola absent; posterior part of propodeum somewhat separated from antero-dorsal part (fig. 647).

Wings. — Fore wing: r : 3-SR : SR1 = 8 : 16 : 57; SR1 weakly curved (fig. 649); cu-a slightly inclivous, antefurcal; 2-M + CU1 : 1 + 2-CU1 = 1 : 16; 2-SR : 3-SR : r-m = 11 : 16 : 7; 2A distinctly developed and sclerotized (fig. 649); area basally of

2A sparsely setose (fig. 648). Hind wing: r absent; 2-SC + R transverse; SC + R1 weakly curved (fig. 655); basal third of SR weakly pigmented, not sclerotized (fig. 649).

Legs. — Hind coxa punctulate, except for some striae dorso-apically; tarsal claws with a comparatively large subapical tooth (figs. 656, 657); length of femur, tibia and basitarsus of hind leg 6.4, 12.4, and 10.2 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.6 times its apical width, its surface smooth, but posterior half rugulose (fig. 658); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.77 times fore wing.

Colour. — Brownish-yellow; stemmaticum yellowish; hind tarsus not or weakly contrasting with its tibia.

Holotype in CNC, Ottawa: "Capulin Nat. Mon., 6 mi. SW. Folsom, N. Mex., 7300′ (ft), 13.IX.1968, D. F. Hardwick". Paratypes: (25 ♀), 1 ♀, "Carr Cyn., 56—6000′ (ft), 15 mi. S. Sierra Vista, Huachuca Mts., Ariz., Sternitzky, 23.X.67" (CNC); 12 ♀, topotypic with holotype (CNC, RMNH); 5 ♀, "Ute Park, N. Mex., 3 mi. SW., 7300′ (ft), 14.IX.1968, D. F. Hardwick" (CNC, RMNH); 1 ♀, "Ramsey Cyn., 6000′ (ft), 15 mi. S. Sierra Vista, Huachuca Mts., Ariz., Sternitzky, 19.X.67" (CNC); 2 ♀, "Portal, Ariz., 5 mi. SW., 5400′ (ft), 3.X.1969, D. F. Hardwick" (CNC, RMNH); 1 ♀, "Mex., Chis., 9600 ft, Zontehuitz, nr. S. Crist., 25 June 1969, W. R. M. Mason" (CNC); 1 ♀, "Onion Saddle, 7 mi. W. Portal, Ariz., 7600′ (ft), 4.X.1969, D. F. Hardwick" (CNC); 1 ♀, "Ozumbilla, Hidalgo, Mex., 10-30-57, R. & K. Dreisbach" (MSU); 1 ♀, "Arizona: Cochise Co., Southwestern Res. Sta., 5 mi. W. Portal, 30.IX.1966, 5400 ft, P. H. Arnaud, Jr." (CAS). Furthermore I examined 3 ♂ from Ute Park, which probably belong to *armatus*, but are excluded from the type-series because they are not distinguishable with certainty from *antefurcalis* and *mesoxiphius*.

Variation: length of fore wing 8.2—10.3 mm; length of body 7.6—8.9 mm; antennal segments 49—50; length of 4th segment of labial palp 2.2—2.8 times 3rd segment; length of ovipositor sheath 0.68—0.79 times fore wing; length of 1st tergite 2.6—2.7 times its apical width; vein cu-a of fore wing antefurcal, exceptionally interstitial.

Homolobus (Oulophus) obscurus spec. nov.
(figs. 667—679, 703)

Holotype, ♀, length of body 7.4, of fore wing 8.4 mm.

Head. — Antennal segments 53, 3rd segment 1.1 times 4th segment, without ridge, length of 3rd and 4th segments 3.5 and 3.1 times their width, respectively, length of both penultimate segments 2.8 and 3.2 times their width; length of 4th segment of labial palp 3.9 times 3rd segment; length of maxillary palp 1.9 times height of head; dorsal length of eye 4.2 times temple; temple narrowed into a line posteriad (fig. 677); POL : ∅ ocellus : OOL = 7 : 11 : 10; frons medially smooth, laterally rugulose, rather flat; vertex flat, coriaceous; face weakly convex, punctate, weakly transversely rugose dorsally (fig. 675); clypeus weakly convex,

punctate and somewhat coriaceous; apical margin of clypeus thin, almost straight medially, and not differentiated (fig. 675); length of malar space 0.7 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.2 times its height; side of pronotum dorsally punctulate, medially and posteriorly crenulate and ventrally mainly finely rugose (fig. 667); epicnemial more or less rugose; precoxal suture dorsally crenulate, and its anterior half widely rugose (fig. 667); rest of mesopleuron finely punctate; metapleural flange large, lamelliform, wide and rounded apically (fig. 667); metapleuron punctulate, ventrally rugose-reticulate; notauli rather coarsely crenulate (fig. 674); mesoscutal lobes remotely punctulate; surface of propodeum mainly finely and densely reticulate-rugose, only anteriorly and posteriorly partly smooth (fig. 667), with a rather long medial carina anteriorly, and areola absent; posterior part of propodeum not separated from antero-dorsal part (fig. 667).

Wings. — Fore wing: r : 3-SR : SR1= 8 : 13 : 44; SR1 curved (fig. 670); cu-a inclivous, interstitial; 2-SR : 3-SR : r-m= 11 : 13 : 8; 2A basally rather long and slender, sclerotized (fig. 671); area basally of 2A evenly setose. Hind wing: r absent; 2-SC + R transverse; SC + R1 evenly curved (fig. 669); basal third of SR almost straight, unsclerotized (fig. 670).

Legs. — Hind coxa remotely and finely punctate, with some striae dorso-apically (fig. 703); tarsal claws with a well-developed, sharp subapical tooth (figs. 678, 679), setose; length of femur, tibia and basitarsus of hind leg 6.8, 10.5, and 8.8 times their width, respectively; length of spurs of hind tibia 0.8 and 0.6 times basitarsus.

Metasoma. — Length of 1st tergite 3.4 times its apical width, its surface behind the spiracles mainly rugose (fig. 676); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.08 times fore wing.

Colour. — Brownish-yellow; head (except for major part of mandibles), basal half of antenna (except annellus and apex of scapus) and most wing veins, dark brown; hind tarsus (but telotarsus yellowish) and ovipositor sheath, yellowish-white; palpi rather light yellowish; wing membrane slightly yellowish.

Holotype in TC, Ann Arbor: "Nova Teutonia, Santa Catarina, June '53, Braz., Fritz Plaumann". Paratypes: (1 ♀ and 1 ♂) 1 ♂ (allotype, TC), topotypic, IV.30.1948; 1 ♀ (RMNH), topotypic, June 1953. Variation: Length of fore wing 7.4—8.0 mm; antennal segments 53—54; length of 1st tergite 3.4—3.5 times its apical width; vein cu-a of fore wing interstitial or postfurcal, 1-CU1 : 2-CU1= 5 : 53; length of malar space 0.7 times basal width of mandible; metasoma somewhat infuscated in allotype.

Homolobus (Oulophus) antefurcalis spec. nov.
(figs. 664—666, 680—690)

Holotype, ♀, length of body 9.6, of fore wing 10.3 mm.

Head. — Antennal segments 54, 3rd segment 1.2 times 4th segment, without ridge, length of 3rd and 4th segments 3.9 and 3.2 times their width, respectively, length of both penultimate segments 2.0 and 2.3 times their width; length of 4th segment of labial palp 2.3 times 3rd segment; length of maxillary palp 1.6 times

height of head; dorsal length of eye 1.7 times temple; temple roundly narrowed posteriad (fig. 686); POL : ∅ ocellus : OOL= 12 : 12 : 11; frons flat, smooth; vertex mainly flat, smooth; face rather flat, indistinctly rugulose-punctulate; clypeus convex, punctulate; apical margin of clypeus thin, almost straight medially, not differentiated (fig. 687); length of malar space 0.6 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum crenulate medio-anteriorly, ventrally crenulae connected with long rugae, posteriorly rugose, and dorsally smooth (fig. 680); epicnemial area mainly smooth, posteriorly indistinctly rugose; precoxal suture largely reticulate-rugose, posteriorly mainly smooth (fig. 680); metapleural flange lamelliform, large, rounded apically; metapleuron mainly smooth, ventrally with some carinae; notauli narrowly and indistinctly crenulate (fig. 666); mesoscutal lobes indistinctly punctulate; surface of propodeum largely smooth, with several vermiform, irregular and remote carinae, with a long irregular medial carina, without well-developed costulae and areola; posterior part of propodeum not separated from antero-dorsal part (fig. 680).

Wings. — Fore wing: r : 3-SR : SR1= 17 : 29 : 110; SR1 weakly curved; cu-a inclivous, antefurcal; 2-M+CU1 : 1+2-CU1= 1 : 17; 2-SR : 3-SR : r-m= 25 : 29 : 15; 2A well developed, rather long and sclerotized basally (fig. 682); area basally of 2A sparsely setose (fig. 681). Hind wing: r absent; 2-SC+R transverse; SC+R1 curved (fig. 683); basal third of SR weakly curved and unsclerotized (fig. 682).

Legs. — Hind coxa punctulate, with some weak striae dorso-apically (fig. 664); tarsal claws with a well-developed, subapical, lamelliform tooth (figs. 685, 690), setose; length of femur, tibia and basitarsus of hind leg 7.4, 10.9, and 10.4 times their width, respectively; length of spurs of hind tibia 0.6 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 3.7 times its apical width, its surface smooth, except for some rugulosity laterally (fig. 665); dorsal carinae of 1st tergite absent, except for a short basal remnant; length of ovipositor sheath 0.15 times fore wing.

Colour. — Brownish-yellow; stemmaticum blackish; most wing veins infuscated; hind tarsus whitish-yellow.

Holotype in CNC, Ottawa: "Cimarron Canyon, 7900 ft, Sangre de Cristo Mts., Colfax Co., N.M., July 12, 1962, black light, E. & J. Munroe". Paratypes: (3 ♀), 1 ♀, "Ute park, N. Mex., 3 mi. SW. 7300′ (ft), 14.IX.1968, D. F. Hardwick" (RMNH); 1 ♀, "Mex., Dgo., 8 mi. E. El Salto, 8500′ (ft), 23.VI.1964, W. R. M. Mason" (CNC); 1 ♀, id., 18 July 1964 (CNC). Variation: Length of fore wing 9.9—10.8 mm; antennal segments 54—56; length of vein 3-SR of fore wing 1.6—1.8 times vein r; length of 1st tergite 3.5—3.7 times its apical width; length of ovipositor sheath 0.12—0.15 times fore wing; sometimes surroundings of stemmaticum infuscated.

Homolobus (Oulophus) mesoxiphius spec. nov.
(figs. 691—702, 704, 705)

Holotype, ♀, length of body 8.5, of fore wing 8.9 mm.

Head. — Antennal segments 50, 3rd segment 1.2 times 4th segment, without ridge, length of 3rd and 4th segments 3.6 and 3.1 times their width, respectively,

length of both penultimate segments 1.9 times their width; length of 4th segment of labial palp 2.6 times 3rd segment; length of maxillary palp 1.5 times height of head; dorsal length of eye 2.4 times temple; temple rather roundly narrowed posteriad (fig. 697); POL : ∅ ocellus : OOL= 11 : 11 : 11; frons smooth, slightly concave; vertex flat, smooth; face flat, punctulate, medially and dorsally weakly aciculate (fig. 695); clypeus convex, punctulate; apical margin of clypeus straight medially and well differentiated from clypeus (fig. 695); length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.2 times its height; side of pronotum dorsally smooth; medially coarsely crenulate, ventrally striate-rugose, and posteriorly rugose (fig. 694); epicnemial area almost smooth, somewhat rugose (fig. 694); precoxal suture reticulate-rugose, only posteriorly mainly smooth; rest of mesopleuron punctulate; metapleural flange large, sublamelliform, rather thick, rounded apically; metapleuron smooth, except for ventral and anterior carinae; notauli anteriorly mainly smooth, posterior third crenulate (fig. 704); mesoscutal lobes weakly punctulate; surface of propodeum rather coarsely and remotely reticulate-rugose medially and laterally, in between mainly smooth, medial carina and areola absent; posterior part of propodeum weakly separated from antero-dorsal part of propodeum (fig. 694).

Wings. — Fore wing: r : 3-SR : SR1= 11 : 32 : 92; SR1 almost straight (fig. 698); cu-a inclivous, antefurcal; 2-M + CU1 : 1 + 2-CU1= 1 : 14; 2-SR : 3-SR : r-m= 26 : 32 : 14; 2A shortly sclerotized basally (fig. 698); area basally of 2A remotely setose (fig. 693). Hind wing: r absent; 2-SC + R transverse; SC + R1 curved (fig. 692); basal third of SR weakly curved, unsclerotized (fig. 698).

Legs. — Hind coxa punctulate, dorso-anteriorly weakly coriaceous and dorso-posteriorly with some short striae (fig. 705); tarsal claws with a well-developed, lamelliform subapical tooth (figs. 696, 699), indistinctly yellowish pectinate basally, except inner hind claw; length of femur, tibia and basitarsus of hind leg 6.7, 11.8 and 9.0 times their width, respectively; length of spurs of hind tibia 0.6 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 2.8 times its apical width, its surface mainly smooth, posterior third rugulose (fig. 702); dorsal carinae of 1st tergite absent; length of ovipositor sheath 0.34 times fore wing.

Colour. — Brownish-yellow; stemmaticum blackish; hind tarsus (except telotarsus) and ovipositor sheath, whitish-yellow; wing membrane hyaline.

Holotype in CNC, Ottawa: "Ramsey Cyn., 5000′ (ft), 15 mi. S. Sierra Vista, Huachuca Mts., Ariz., Sternitzky, vii.1968". Paratypes: 9 ♀, topotypic, vii.1968 (6), viii.1968 (1), 18.ix.1967 (1), and 29.x.1967 (1) (CNC, RMNH). Variation: Length of fore wing 9.0—10.0 mm; antennal segments 49—52; length of ovipositor sheath 0.29—0.36 times fore wing; length of vein 3-SR of fore wing 2.2—3.7 times vein r; vein cu-a of fore wing antefurcal, but sometimes not distinctly so.

Homolobus (Oulophus) macropterus spec. nov.
(figs. 714—728)

Holotype, ♀, length of body 8.9, of fore wing 11.5 mm.

Head. — Antennal segments 43, 3rd segment 1.1 times 4th segment, with a rather weakly-developed ridge (fig. 720), length of 3rd and 4th segments 4.2 and 4.0 times their width, respectively, length of both penultimate segments 2.6 and 2.7 times their width; length of 4th segment of labial palp 3.9 times 3rd segment; length of maxillary palp 1.7 times height of head; dorsal length of eye 2.0 times temple; temple roundly narrowed posteriad (fig. 722); POL : ∅ ocellus : OOL= 8 : 9 : 16; frons medially somewhat concave, with some striae behind antennal sockets (fig. 722); vertex rather flat and smooth; face mainly flat, medio-dorsally with a tubercle, punctulate, and dorsally somewhat rugulose (fig. 721); clypeus convex, punctulate; apical margin of clypeus almost straight medially, thin, and well differentiated from clypeus; length of malar space 0.8 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum crenulate medio-anteriorly, medially punctulate, and posteriorly crenulate-rugose (fig. 714); epicnemial area punctulate, posteriorly indistinctly rugulose; precoxal suture only anteriorly weakly rugulose, punctulate; rest of mesopleuron punctulate; metapleural flange long, lamelliform, very wide, rounded anteriorly (fig. 714); metapleuron reticulate-rugose ventrally, rest punctulate; notauli indistinctly crenulate anteriorly, more distinctly crenulate posteriorly (fig. 728); mesoscutal lobes punctulate; surface of propodeum smooth, except for some crenulae posteriorly and an interrupted lamelliform lateral carina (fig. 726), medial carina mainly and areola completely absent; posterior part of propodeum not separated from antero-dorsal part (fig. 714).

Wings. — Fore wing: r : 3-SR : SR1= 6 : 14 : 65; SR1 straight; cu-a inclivous, postfurcal; 1-CU1 : 2-CU1= 2 : 23; 2-SR : 3-SR : r-m= 17 : 14 : 7; 2A shortly sclerotized basally (fig. 719); area basally of 2A bare. Hind wing: r absent; 2-SC + R transverse; SC + R1 rather straight and long (fig. 725); basal third of SR straight and unsclerotized (fig. 716).

Legs. — Hind coxa punctulate, with some apico-dorsal striae (fig. 727); tarsal claws with a well-developed subapical sharp tooth (figs. 723, 724), yellowish pectinate basally; length of femur, tibia and basitarsus of hind leg 7.6, 12.4, and 10.4 times their width, respectively; length of spurs of hind tibia 0.5 and 0.4 times basitarsus.

Metasoma. — Length of 1st tergite 2.9 times its apical width, its surface smooth (fig. 726); dorsal carinae of 1st tergite mainly absent; length of ovipositor sheath 0.07 times fore wing.

Colour. — Brownish-yellow; stemmaticum blackish; hind tarsus yellowish-white; all tibiae, fore and middle tarsi and tegulae, rather light yellowish.

Type in TC, Ann Arbor: "10 m W. Silvia, Cauca, Colombia, VII.5.(19)70, 10,000′ (ft), H. & A. Howden".

Homolobus (Oulophus) rectinervis spec. nov.
(figs. 734—747)

Holotype, ♀, length of body 7.2, of fore wing 7.6 mm.

Head. — Antennal segments 44, 3rd segment 1.1 times 4th segment, without

ridge, length of 3rd and 4th segments 3.8 and 3.6 times their width, respectively, length of both penultimate segments 1.7 and 2.0 times their width; length of 4th segment of labial palp 2.8 times 3rd segment; length of maxillary palp 1.3 times height of head; dorsal length of eye 2.0 times temple; temple rather roundly narrowed posteriad (fig. 741); POL : ∅ ocellus : OOL= 4 : 4 : 5; frons smooth, weakly concave medially; vertex smooth, rather flat; face flat, punctulate laterally, more punctate medially; clypeus convex, punctulate; apical margin of clypeus scarcely differentiated from clypeus, thin, and straight medially (fig. 744); length of malar space 0.8 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum medially crenulate and posteriorly rugose, rest mainly smooth (fig. 734); epicnemial area smooth, except for some punctulation; precoxal suture and rest of mesopleuron punctulate (fig. 734); metapleural flange lamelliform, large, rather rounded apically; notauli narrowly crenulate (fig. 746); mesoscutal lobes mainly smooth; surface of propodeum mainly smooth, medio-anteriorly with an irregular medial carina and medio-posteriorly rugose, without areola; posterior part of propodeum not separated from antero-dorsal part (fig. 734).

Wings. — Fore wing: r : 3-SR : SR1= 4 : 8 : 45; SR1 weakly sinuate (fig. 737); cu-a almost straight, postfurcal; 1-CU1 : 2-CU1= 5 : 33; 2-SR : 3-SR : r-m= 12 : 8 : 7; 2A shortly sclerotized basally (fig. 738); area basally of 2A bare. Hind wing: r absent; 2-SC+R transverse; SC+R1 almost straight (fig. 739); basal third of SR almost straight and unsclerotized (fig. 737).

Legs. — Hind coxa rugulose dorso-anteriorly (fig. 745); tarsal claws setose, with a small, slender subapical tooth (figs. 736, 740); length of femur, tibia and basitarsus of hind leg 7.3, 11.5, and 9.6 times their width, respectively; length of spurs of hind tibia 0.4 and 0.5 times basitarsus.

Metasoma. — Length of 1st tergite 2.4 times its apical width, its surface posteriorly remotely and weakly rugose, laterally and basally mainly smooth (fig. 747); dorsal carinae of 1st tergite distinctly developed in basal third of tergite; length of ovipositor sheath 0.14 times fore wing.

Colour. — Brownish-yellow; stemmaticum slightly infuscated.

Holotype in CNC, Ottawa: "Fundo Malcho, Cord. Parral, Chile, L. E. Peña, II.1958". Paratypes: (9 ♀ and 8 ♂), 1 ♀, "Graneros, 1100 m, Prov. O'Higgins, Chile, 4.III.62, L. E. Peña" (RMNH); 1 ♂ (NR), "Ria Aysén (=Aisén, South Chile)", "P. Dusén", "Riksmuseum Stockholm"; 1 ♂ (TC), "Marga Marga River, III.14—15.64, Chile, Luis E. Peña", allotype; 1 ♀, "Bosque de los Conservadores Graneros, 1100 m, O'Higgins, Chile, 1—4.III.62, Peña" (CNC); 1 ♂, "Pichinahuel, Cord., Nahuelbuta, Arauco, Chile, 20—28.I.1959, L. Peña" (CNC); 2 ♂, "El Coigo, Curico, Chile, 1/7.II.1961" (CNC); 1 ♂, id., I.1961 (CNC); 1 ♀, "Chile, Cubillo, C. Curico, Curico, 24/26.I.1961, L. E. Peña" (CNC); 1 ♀, "Pichinahuel, Cord. Nahuelbuta, Arauco, Chile, 10/20.I.1959, L. Peña" (RMNH); 1 ♀, "Tregualemu, Maule-Nuble, Chile, 7.XII.1953, L. Peña" (CNC); 1 ♂, Penalolén, Santiago, Chile, X.1953, L. E. Peña" (RMNH); 1 ♀, "Enco, Chile, Valdivia, 2.III.1955, L. E. Peña" (RMNH); 1 ♀, "Las Nieves, 15.IX.47, Chile, L. E. Peña" (CNC); 1 ♀, "Laguna Amarga, Magallanes, XII.12.60, Chile, T. Cehalovick"

(TC); 1 ♀, "Santiago Prov., Maipa, Chile, XII.28.66, Lionel Stange" (TC); 1 ♂, "Pto. Aqua, L. Traful, Neuquen, Argentina, January 30, 1968, L. & J. Stange", (TC).

Variation: Length of body 6.8—7.8, of fore wing 7.1—8.4 mm; antennal segments 42—44; length of malar space 0.6—0.8 times basal width of mandible; length of fore wing 1.1—1.2 times body; length of ovipositor sheath 0.13—0.14

Key to the Palaearctic species of the genus *Homolobus*

1. Claws simple, without any protuberance (fig. 160); hind tibial spurs of ♂ rounded and pigmented apically, without a sharp, hyaline apex (fig. 112) (subgenus *Apatia*) 2
— Claws with at least a minute subapical tooth (fig. 643) or with a lamella (fig. 629); hind tibial spurs of ♂ sharp and hyaline apically 4
2. Length of outer aspect of 4th segment of labial palp 1.6—2.8 times its medium-sized 3rd segment (fig. 309) 3
— Length of outer aspect of 4th segment of labial palp 4—5 times its tiny 3rd segment (fig. 164) . . . . . *truncator* (Say) (p. 285)
3. Frontal aspect of head comparatively transverse (fig. 301), upper condyli of mandibles of ♀ close to lower level of eyes; length of malar space 0.3—0.7 times basal width of mandible; claws distinctly yellowish pectinate basally (fig. 294) . . . . . *ophioninus* (Vachal) (p. 298)
— Frontal aspect of head more trapezoid, longer (fig. 311), upper condyli of mandibles of ♀ distinctly below lower level of eyes; length of malar space 0.6—1.1 times basal width of mandible; claws not or weakly pectinate basally (figs. 313, 314) . . . . . *truncatoides* spec. nov. (p. 300)
4. Vein 1A + 2A straight (figs. 396, 419) 6
— Vein 1A + 2A curved (fig. 343) (subgenus *Chartolobus*) 5
5. Antennal ridge at inner side of 4th—6th segments straight (fig. 348); vein 2A of fore wing slender compared with its surrounding veins (figs. 343, 353) . . . . . *infumator* (Lyle) (p. 305)
— Antennal ridge of 4th—6th segments undulate (fig. 366); vein 2A of fore wing widened basally, if compared with surrounding veins (fig. 369) . . . . . *undulatus* spec. nov. (p. 309)
6. Vein SR of hind wing strongly curved and sclerotized basally (fig. 507); area basally of vein 2A of fore wing remotely setose (fig. 496) (subgenus *Phylacter*) 7
— Vein SR of hind wing straight or weakly curved and unsclerotized basally (figs. 539, 649); if, exceptionally, extensively sclerotized, then area basally of vein 2A of fore wing mainly bare (fig. 636) 9
7. Claws bifurcate, subapical tooth large and in ♀ truncate apically (figs. 488, 491); length of ovipositor sheath 0.12—0.14 times fore wing . . . . . *bifurcatus* spec. nov. (p. 322)
— Claws with a subapically sharp and tooth-shaped ventral lamella (figs. 498,

510); length of ovipositor sheath 0.17—0.25 times fore wing 8

8. Vein 2-SC + R of hind wing transverse, longer than wide (fig. 495) or quadrate; hind tarsus more yellowish basally than medially, its 2nd—4th segments whitish and contrasting with hind tibia . . . . . *annulicornis* (Nees) (p. 324)

— Vein 2-SC + R of hind wing vertical, wider than long (fig. 507); hind tarsus equally whitish yellow, only weakly contrasting with hind tibia . . . . . *meridionalis* spec. nov. (p. 326)

9. Inner aspect of 3rd—6th antennal segments of ♀ with a longitudinal ridge (fig. 468); inner hind claw of ♀ with a concavity ventro-subbasally (fig. 476), not equal to its outer claw (fig. 475) (subgenus *Homolobus*) 10

— Inner aspect of 3rd—6th antennal segments of ♀ without a ridge, or exceptionally with a faintly developed ridge; inner hind claw of ♀ convex or straight ventro-subbasally (fig. 534), (sub)equal to its outer claw (fig. 536) (subgenus *Oulophus*) 12

10. Tarsal claws with a submedial lamella (figs. 390, 392); lamellae of middle and hind claws of ♂ with a 2nd lamella situated at the 1st lamella (figs. 393, 394) . . . . . *simplex* (Watanabe) (p. 313)

— Tarsal claws with a subapical tooth (fig. 443); claws of ♂ without lamellae 11

11. Ovipositor sheath short (fig. 459), 0.09—0.12 times fore wing; propodeum without an areola, mainly smooth, except for some rugae (fig. 459); mesopleuron smooth . . . . . *discolor* (Wesmael) (p. 319)

— Ovipositor sheath rather long (fig. 467), 0.36—0.39 times fore wing; propodeum with a suboval areola, its surroundings usually rugose (fig. 467); mesopleuron punctulate . . . . . *dauricus* Shestakov (p. 320)

12. Malar space comparatively long (figs. 525, 532), its length 1.0—1.3 times basal width of mandible; hind coxa more or less coarsely sculptured (figs. 523, 527); both penultimate segments of antenna of ♀ rather stout, their length 1.2—1.6 times their width (figs. 518, 531) 13

— Malar space comparatively short (figs. 549, 554), its length 0.3—0.8 times basal width of mandible; hind coxa at most punctulate (fig. 553); both penultimate segments of antenna of ♀ more slender (fig. 640), their length 1.7—2.9 times their width 14

13. Subapical tooth of tarsal claws comparatively stout, rather blunt and subequal to its apical tooth, resulting in sub-bifurcate claws (figs. 522, 524); body mainly black; medially propodeum coarsely reticulate; vein r of hind wing absent (fig. 516) or only present as a short remnant (fig. 519); pterostigma dark brown; hind basitarsus black or brownish basally and at least apical half of basitarsus white; vertex smooth or punctulate (fig. 520) . . . . . *carbonator* (Shestakov) (p. 330)

— Subapical tooth of tarsal claws slender, sharp, much shorter than the apical tooth (figs. 531, 536); body yellowish and/or brownish; propodeum, except for the carinae, only indistinctly sculptured (fig. 537); vein r of hind wing present, but anterior half usually not distinctly developed (fig. 539), exceptionally mainly absent; whole of hind basitarsus and pterostigma yellowish; vertex coriaceous (fig. 538) . . . . . *bohemani* (Bengtsson) (p. 332)

14. Only basal quarter of vein SR of hind wing pigmented, not equal to vein 1r-m (fig. 555); precoxal suture mainly smooth (fig. 553); antenna equally coloured, without a white or yellowish ring; vein r of hind wing present (fig. 607) . . 15
— Basal quarter of vein SR of hind wing equally sclerotized as vein 1r-m of hind wing (fig. 635) precoxal suture extensively sculptured (fig. 633); antenna with a white or yellowish ring medially; vein r of hind wing absent (fig. 635) . . . . . *annulatus* spec. nov. (p. 342)
15. Ovipositor sheath rather long (fig. 577), 0.25—0.52 times fore wing; mesonotum mainly black; pterostigma dark brown medially 16
— Ovipositor sheath short (fig. 553), 0.08—0.12 times fore wing; mesonotum mainly yellowish-brown; pterostigma yellowish *flagitator* (Curtis) (p. 334)
16. Length of ovipositor sheath subequal to length of metasoma and 0.51—0.52 times fore wing (fig. 588); length of vein 3-SR of fore wing 1.7—2.0 times vein r; face blackish; length of malar space 0.6—0.7 times basal width of mandible . . . . . *nipponensis* spec. nov. (p. 338)
— Length of ovipositor sheath 0.25—0.26 times fore wing and much shorter than metasoma (fig. 602); length of vein 3-SR of fore wing 1.0—1.3 times vein r; face reddish-brown; length of malar space 0.4—0.5 times basal width of mandible . . . . . *nepalensis* spec. nov. (p. 340)

Key to the Nearctic species of the genus *Homolobus*

1. Tarsal claws with at least a minute subapical tooth (fig. 545), which is sometimes lamelliform (fig. 350); hind tibial spurs of ♂ sharp and hyaline apically 2
— Tarsal claws simple, without any protuberance (fig. 160); hind tibial spurs of ♂ rounded and pigmented apically (fig. 112) (subgenus *Apatia*) . . . . . *truncator* (Say) (p. 285)
2. Vein 1A + 2A of fore wing straight (fig. 542) (subgenus *Oulophus*) 3
— Vein 1A + 2A of fore wing curved (fig. 353) (subgenus *Chartolobus*) . . . . . *infumator* (Lyle) (p. 305)
3. Vein r of hind wing present (figs. 543, 555), at least posteriorly, as a brownish pigmented stripe; precoxal suture mainly smooth (figs. 541, 553) 4
— Vein r of hind wing completely absent (fig. 649); precoxal suture extensively sculptured, at least dorsally (fig. 647) 6
4. Pterostigma and parastigma of ♀ bicolorous, yellowish and dark brown; hind tarsus brownish-yellow; vein r of hind wing short and comparatively straight (fig. 540); vertex coriaceous (fig. 550) . . . . . *bicolor* spec. nov. (p. 333)
— Pterostigma and parastigma of ♀ unicolorous, yellowish; hind tarsus whitish-yellow; vein r of hind wing comparatively long and strongly reclivous (fig. 555); vertex smooth (fig. 556) 5
5. Precoxal suture with some rugae antero-dorsally (fig. 553); subapical tooth of claws comparatively slender and claw weakly concave ventro-medially (figs. 558, 560); vein cu-a of fore wing parallel to vein 3-CU1 (fig. 555); palpi, fore and middle legs, more or less whitish-yellow; costulae of propodeum at least

partly present (fig. 553) . . . . . *flagitator* (Curtis) (p. 334)
— Precoxal suture smooth antero-dorsally (fig. 564); claws with an apical sharp, tooth-shaped ventral lamella and claws straight medio-ventrally (figs. 570, 571); vein cu-a of fore wing more inclivous than vein 3-CU1 (fig. 567); palpi, fore and middle legs, brownish-yellow; costulae of propodeum absent (fig. 661) . . . . . *acares* spec. nov. (p. 336)
6. Ovipositor sheath medium-sized (fig. 694) or rather short (fig. 680), 0.12—0.36 times fore wing; subapical tooth of claws medium-sized (fig. 678) or rather large (fig. 699); hind tarsus more whitish-yellow, contrasting with its brownish tibia 7
— Ovipositor sheath long (fig. 646), 0.68—0.79 times fore wing; subapical tooth of claws large (fig. 657); hind tarsus and its tibia almost equally coloured, not or weakly contrasting . . . . . *armatus* spec. nov. (p. 343)
7. Ovipositor sheath rather short (fig. 680), 0.12—0.15 times fore wing; length of vein 3-SR of fore wing less than twice length of vein r (fig. 682) . . . . . *antefurcalis* spec. nov. (p. 345)
— Ovipositor sheath medium-sized (fig. 694), 0.29—0.36 times fore wing; length of vein 3-SR of fore wing more than twice vein r (fig. 698) . . . . . *mesoxiphius* spec. nov. (p. 346)

Key to the Neotropical species of the genus *Homolobus*

1. Tarsal claws with at least a minute subapical tooth (fig. 740), which is sometimes lamelliform (fig. 350); hind tibial spurs of ♂ sharp apically, with a hyaline apex 2
— Tarsal claws simple, without any protuberance (fig. 160); hind tibial spurs of ♂ rounded and pigmented apically (fig. 112) (subgenus *Apatia*) . . . . . *truncator* (Say) (p. 285)
2. Vein 1A + 2A of fore wing straight (fig. 738) (subgenus *Oulophus*) 3
— Vein 1A + 2A of fore wing curved (fig. 353) (subgenus *Chartolobus*) . . . . . *infumator* (Lyle) (p. 305)
3. Vein r of hind wing present (fig. 567), at least posteriorly, as a brownish pigmented stripe 4
— Vein r of hind wing completely absent (fig. 670) 5
4. Ovipositor sheath short (fig. 564), 0.08—0.10 times fore wing; pterostigma unicolorous, yellowish; vertex smooth (fig. 568) . . *acares* spec. nov. (p. 336)
— Ovipositor sheath medium-sized (fig. 577), ca. 0.43 times fore wing; pterostigma bicolorous, medially dark brown, basally and apically yellowish; vertex coriaceous (fig. 578) . . . . . *occidentalis* spec. nov. (p. 337)
5. Vein SC + R1 of hind wing curved (fig. 669); area basally of vein 2A of fore wing sparsely setose (fig. 671); precoxal suture extensively sculptured anteriorly (fig. 667); head and antenna dark brown . . . . . *obscurus* spec. nov. (p. 344)
— Vein SC + R1 of hind wing straight (fig. 725); area basally of vein 2A of fore wing bare (fig. 719); precoxal suture usually mainly smooth (fig. 714) 6

6. Length of fore wing of ♀ ca. 1.3 times length of body (compare fig. 716 with fig. 714); inner aspect of 3rd—8th antennal segments with a rather weakly developed ridge (fig. 720); subapical tooth of claws larger, comparatively stout (fig. 723); length of ovipositor sheath ca. 0.07 times fore wing . . . . . *macropterus* spec. nov. (p. 347)
— Length of fore wing of ♀ 1.0—1.1 times length of body (compare fig. 737 with fig. 734); inner aspect of 3rd—8th antennal segments without ridge; subapical tooth of claws comparatively small and slender (fig. 740); length of ovipositor sheath 0.13—0.14 times fore wing . . . . . *rectinervis* spec. nov. (p. 348)

Key to the Afrotropical species of the genus *Homolobus*

1. Hind claws of ♀ with at least a minute sharp subapical tooth (figs. 426, 443) sometimes claws bifurcate (fig. 406); inner aspect of 3rd—6th antennal segments of ♀ with a ridge (fig. 424); inner hind claw of ♀ weakly concave ventro-subbasally (figs. 427, 439), not the same shape as outer hind claw (figs. 426, 443) (subgenus *Homolobus*) 2
— Hind claws of ♀ simple, without a sharp subapical tooth (fig. 252), at most with a blunt scarcely visible, subapical prominence (figs. 153, 237); inner aspect of 3rd—6th antennal segments of ♀ without a ridge; inner hind claw of ♀ convex or straight ventro-subbasally (fig. 314), of the same shape as outer claw (fig. 313) (subgenus *Apatia*) 5
2. Claws bifurcate (fig. 406); 2nd tergite rugose (fig. 404); vertex punctate (fig. 409); vein SC + R1 of hind wing short, R1 mainly absent, and hamuli separated from R1 (fig. 412) . . . . . *rugosus* spec. nov. (p. 314)
— Claws with a small subapical tooth (fig. 426); 2nd tergite smooth (fig. 428); vertex at most punctulate (fig. 429); vein SC + R1 of hind wing longer, R1 shortly developed, and hamuli situated at R1 (fig. 425) 3
3. Second tergite whitish; subapical tooth of tarsal claws of ♀ scarcely visible at 80× (fig. 443) or, if easily visible, then length of ovipositor sheath 0.14—0.17 times fore wing 4
— Second tergite dark brown and partly reddish or yellowish-brown; subapical tooth of tarsal claws of ♀ easily visible at 80× (figs. 452, 455); length of ovipositor sheath 0.07—0.08 times fore wing *ethiopicus* spec. nov. (p. 318)
4. Length of ovipositor sheath 0.14—0.17 times fore wing, about as long as apical height of metasoma, slender as ovipositor (fig. 416); subapical tooth of tarsal claws of ♀ small, but easily visible at 80× (figs. 426, 427) . . . . . *cingulatus* (Granger) (p. 315)
— Length of ovipositor sheath 0.06—0.09 times fore wing, distinctly shorter than apical height of metasoma, rather stout as ovipositor (fig. 431); subapical tooth of tarsal claws of ♀ minute and scarcely visible at 80× (figs. 439, 443) . . . . . *inopinus* spec. nov. (p. 316)
5. First tergite of metasoma black, strongly contrasting with the (at least in part, laterally) whitish 2nd and 3rd tergites; vein SR1 of fore wing straight (fig. 147);

precoxal suture mainly smooth (fig. 144) . . . . . *albipalpis* (Granger) (p. 283)

— Three basal tergites of metasoma brownish-yellow, if more or less dark brown, then 2nd tergite yellowish, dark brown or blackish and less contrasting with 1ste tergite; vein SR1 of fore wing more or less curved (figs. 184, 196), if straight (figs. 206, 219), then precoxal suture extensively sculptured (figs. 204, 216) 6

6. Length of outer aspect of 4th segment of labial palp 3.0—5.0 times the small 3rd segment (figs. 200, 222, 235), if intermediate, then vein cu-a of fore wing antefurcal (fig. 206) and/or apical half of metasoma mainly dark brown or blackish 7

— Length of outer aspect of 4th segment of labial palp 1.6—2.8 times the medium-sized 3rd segment (figs. 246, 257, 265); vein cu-a of fore wing more or less postfurcal (figs. 266, 329); metasoma mainly yellowish apically 10

7. Tarsal claws of ♀ with a tiny prominence subapically (figs. 212, 225); veins SR1 of fore wing and SR of hind wing straight or nearly so (figs. 206, 234) . 8

— Tarsal claws of ♀ without any prominence (figs. 202, 203); vein SR1 of fore wing curved (fig. 196) vein SR of hind wing sinuate (fig. 196) . . . . . *rufithorax* (Granger) (p. 289)

8. Length of malar space 1.2—1.6 times basal width of mandible (fig. 210); apical half of metasoma blackish or dark brown . . . *maculatus* spec. nov. (p. 291)

— Length of malar space 0.7—1.0 times basal width of mandible (figs. 229, 238), if intermediate, then apical half of metasoma yellowish 9

9. Vein r of fore wing longer than 3-SR (fig. 219); subapical prominence of claws of ♀ very small, scarcely visible at 80× (figs. 225, 226); head, antenna and hind leg, mainly dark brown; palpi, tegulae, fore and middle coxae, yellowish white . . . . . *alternipes* spec. nov. (p. 292)

— Vein r of fore wing shorter than 3-SR (fig. 234), exceptionally of equal length; subapical prominence of claws of ♀ small, but at 80× easily visible (fig. 237); head, antenna, hind leg, palpi, tegulae, fore and middle coxae, brownish yellow . . . . . *priapus* (Nixon) (p. 293)

10. Vein SR of hind wing strongly sinuate (figs. 243, 258); marginal cell of hind wing distinctly narrowed medially, in respect to its basal width (figs. 254); middle lobe of mesoscutum finely and densely punctate or punctulate (figs. 250, 262); scapus more or less dark brown; vein SC+R1 of hind wing comparatively short (figs. 254, 259) 11

— Vein SR of hind wing weakly sinuate (fig. 266); marginal cell of hind wing not or weakly constricted medially, in respect to its basal width (fig. 290); middle lobe of mesoscutum smooth or weakly punctulate (fig. 300); scapus mainly yellowish; vein SC+R1 of hind wing somewhat longer (figs. 267, 307) . . 12

11. Marginal cell of hind wing constricted just after middle of the cell (fig. 243); length of ovipositor sheath 0.24—0.26 times fore wing, the exserted ovipositor longer than 1.5 times length of 1st tergite (fig. 240); propodeum and 1st tergite irregularly sculptured (figs. 240, 253) . . . . . *lacteiceps* spec. nov. (p. 294)

— Marginal cell of hind wing constricted in front of middle of the cell (fig. 258); length of ovipositor sheath ca. 0.14 times fore wing, the exserted ovipositor

slightly longer than 1st tergite (fig. 280); propodeum and 1st tergite evenly, finely and densely rugulose (figs. 142, 255) . . . *pulchricornis* (Nixon) (p. 296)

12. Vein 2-SC + R of hind wing transverse, longer than wide (fig. 290); length of hind femur 5.6—7.2 times its maximum width, usually comparatively slender (fig. 291), if intermediate, then upper condyli of mandibles rather far below lower level of eyes or 1st tergite more slender, longer than 2.2 times its apical width (fig. 311); lateral aspect of hind tibial spurs of ♂ more or less truncate apically (figs. 296, 297) 13
— Vein 2-SC + R of hind wing vertical or quadrate (fig. 267); length of hind femur 4.6-5.8 times its maximum width, comparatively stout (fig. 269); upper condyli of mandibles comparatively close to lower level of eyes (fig. 270); 1st tergite stout, its length 1.7—2.2 times its apical width (fig. 271); lateral aspect of hind tibial spurs of ♂ sharp apically (figs. 272, 273) *huddlestoni* spec. nov. (p. 297)
13. Frontal aspect of head comparatively long, trapezoidal (figs. 311, 330); upper condyli of mandibles of ♀ distinctly below lower level of eyes (figs. 311, 330); length of malar space 0.8—1.1 times basal width of mandible, if exceptionally shorter, then claws setose basally (figs. 313, 314) 14
— Frontal aspect of head comparatively short, transverse (fig. 301); upper condyli of mandibles of ♀ close to lower level of eyes (fig. 301); length of malar space 0.3—0.7 times basal width of mandible; claws yellowish pectinate basally (fig. 294) . . . . . *ophioninus* (Vachal) (p. 298)
14. Vein SC + R1 of hind wing somewhat curved and shorter (figs. 306, 307); marginal cell of hind wing usually less widened apicad, its apical width 1.9—2.2 times its maximum basal width (fig. 306); length of fore wing 3.5—7.1 mm; claws only setose or indistinctly pectinate basally (figs. 313, 314); ovipositor sheath in undistorted position rather wide apically (fig. 303) . . . . . *truncatoides* spec. nov. (p. 300)
— Vein SC + R1 of hind wing almost straight and somewhat longer (figs. 329, 337); marginal cell of hind wing more widened apicad, its apical width 2.4—2.6 times its maximum basal width (fig. 329); length of fore wing 7.0—9.5 mm; claws distinctly pectinate basally (figs. 339, 340); ovipositor sheath slightly more slender (fig. 335) . . . . . *pallidistigmus* (Cameron) (p. 303)

Key to the Oriental and Australian species of the genus *Homolobus* (Himalayan area included)

1. Claws simple, without any protuberance (fig. 295); hind tibial spurs of ♂ often rounded and pigmented apically (fig. 112) (subgenus *Apatia*) 2
— Claws with at least a minute subapical tooth (fig. 638) or with a lamella (fig. 624); hind tibial spurs of ♂ always sharp and hyaline apically 6
2. Vein r of hind wing absent (fig. 130); hind tibial spurs of ♂ rounded and pigmented apically (fig. 112) 3
— Vein r of hind wing present (fig. 122); hind tibial spurs of ♂ sharp and hyaline apically . . . . . *elagabalus* (Nixon) (p. 280)
3. First tergite of metasoma black, strongly contrasting with the laterally whitish

2nd and 3rd tergite; anteriorly precoxal suture mainly smooth (fig. 128) . . . . . *australiensis* (Nixon) (p. 282)

— Basal three tergites of metasoma equally brownish-yellow; anteriorly precoxal suture extensively sculptured (figs. 287, 302) 4

4. Length of outer aspect of 4th segment of labial palp 4—5 times its tiny 3rd segment (fig. 164) . . . . . *truncator* (Say) (p. 285)

— Length of outer aspect of 4th segment of labial palp 1.6—2.8 times its medium-sized 3rd segment (fig. 309) 5

5. Frontal aspect of head comparatively transverse (fig. 301); upper condyli of mandibles of ♀ close to lower level of eyes; length of malar space 0.3—0.7 times basal width of mandible; claws yellowish pectinate basally (figs. 294, 295) . . . . . *ophioninus* (Vachal) (p. 298)

— Frontal aspect of head comparatively long (fig. 311); upper condyli of mandibles of ♀ distinctly below lower level of eyes (fig. 311); length of malar space of ♀ 0.6—1.1 times basal width of mandible; claws not or weakly pectinate basally (figs. 313, 314) . . . . . *truncatoides* spec. nov. (p. 300)

6. Vein 1A + 2A of fore wing curved (figs. 353, 369, 380) (subgenus *Chartolobus*) 7

— Vein 1A + 2A of fore wing straight (fig. 619) 9

7. Vein 2A of fore wing widened, if compared with its surrounding veins (figs. 369, 380) 8

— Vein 2A of fore wing slender, if compared with its surrounding veins (fig. 353) . . . . . *infumator* (Lyle) (p. 305)

8. Basal third of vein SR of hind wing weakly curved (figs. 367, 368); pterostigma light brownish or yellowish brown; hind tarsus yellowish or whitish . . . . . *undulatus* spec. nov. (p. 309)

— Basal third of vein SR of hind wing almost straight (fig. 382); pterostigma and hind tarsus blackish . . . . . *nigritarsis* spec. nov. (p. 310)

9. Vein SR of hind wing strongly curved and extensively sclerotized basally (fig. 484); area basally of vein 2A of fore wing remotely setose (fig. 485); claws bifurcate, the subapical tooth large and in ♀ truncate apically (figs. 488, 491) (subgenus *Phylacter*) . . . . . *bifurcatus* spec. nov. (p. 322)

— Vein SR of hind wing straight or weakly curved, usually only pigmented basally, if exceptionally extensively sclerotized, then area basally of vein 2A of fore wing mainly bare (fig. 619); claws with lamella (fig. 624) or with a sharp medium-sized or small subapical tooth (fig. 534) (subgenus *Oulophus*) . . 10

10. Frontal aspect of head comparatively long (figs. 525, 535); length of malar space 1.0—1.3 times basal width of mandible; hind coxa more or less coarsely sculptured (figs. 513, 527); length of both penultimate segments 1.2—1.6 times their width (figs. 518, 531) 11

— Frontal aspect of head comparatively transverse (fig. 620); length of malar space 0.3—0.8 times basal width of mandible; hind coxa at most punctulate and somewhat rugose dorsally (fig. 616); both penultimate segments of antenna of ♀ 1.7—2.9 times their width (figs. 609, 621) 12

11. Subapical tooth of tarsal claw of ♀ comparatively stout, rather blunt and

subequal to the apical tooth, resulting in sub-bifurcate claws (figs. 522, 524); body mainly black; medially propodeum mainly coarsely reticulate; vein r of hind wing absent or at most an indistinctly developed remnant present (figs. 516, 519); pterostigma dark brown; basally hind basitarsus more or less blackish or dark brown and at least its apical half white; vertex smooth or punctulate (fig. 520) . . . . . *carbonator* (Shestakov) (p. 330)

— Subapical tooth of tarsal claws of ♀ slender, sharp, much shorter than the apical tooth (figs. 534, 536, 707); body brownish and/or yellowish; propodeum (except for the carinae) indistinctly sculptured (fig. 537); vein r of hind wing present, but anterior half usually indistinctly developed (fig. 529); exceptionally largely absent; pterostigma and whole hind basitarsus yellowish; vertex coriaceous (fig. 538) . . . . . *bohemani* (Bengtsson) (p. 332)

12. Vein r of hind wing present, at least as a brownish pigmented stripe (figs. 555, 607); basal quarter of vein SR of hind wing only pigmented, unsclerotized (fig. 555) 13

— Vein r of hind wing completely absent; basal quarter of vein SR of hind wing equally sclerotized as vein 1-M of hind wing (fig. 618) 14

13. Length of ovipositor sheath 0.08—0.12 times fore wing (fig. 553); apical two-thirds of hind tibia and metasoma yellowish . . . . *flagitator* (Curtis) (p. 334)

— Length of ovipositor sheath 0.25—0.26 times fore wing (fig. 602); apical two-thirds of hind tibia and mesosoma mainly blackish . . . . . *nepalensis* spec. nov. (p. 340)

14. Vein 2-SC + R of hind wing long, transverse (fig. 618); base of vein SR of hind wing straight (fig. 631); tarsal claws with a ventral lamella (fig. 624); antenna, hind tibia and body, yellowish . . . . . *crenulatus* spec. nov. (p. 341)

— Vein 2-SC + R of hind wing short, vertical (fig. 635); base of vein SR of hind wing weakly curved (fig. 641); tarsal claws with a subapical tooth (fig. 638); antenna mainly dark brown, but with a white or yellowish ring medially; body and apical 0.7 of hind tibia mainly brownish black . . . . . *annulatus* spec. nov. (p. 342)

Subfamily EUPHORINAE Foerster

Foerster, 1862, Verh. naturh. Ver. preuss. Rheinl. 19: 228, 250.

Syn.: Perilitinae Foerster, 1862.

Diagnosis. — Antescutal depression and hypoclypeal depression absent; 1st discal cell of fore wing (sub)petiolate, vein 1-SR present or nearly so; dorsope of 1st tergite present or (less frequently) absent; 1st tergite of metasoma petiolate, subsessile or sessile, more or less narrowed in front of spiracles, exceptionally weakly narrowed behind spiracles; apical segment of antenna variable (figs. 767, 787, 847); occipital carina connected with the hypostomal carina above the mandibular base; veins a and CU1b of fore wing absent (fig. 836), exceptionally a short part of CU1b present (fig. 792); pronope of pronotum more or less developed (fig. 874); metapleural flange variable; hypostomal and prepectal carina present; lateral carina of scutellum absent; lateral carina of mesoscutum more or less

developed; vein m-cu of fore wing usually antefurcal or interstitial with 2-SR, exceptionally postfurcal; subbasal cell of hind wing usually large; antennal segments 15—50; lobes of mesoscutum equally convex; trochantelli simple, without teeth; scapus (sub)truncate apically; vein 2A of fore wing usually absent or shortly developed; 1st subdiscal cell of fore wing more or less open ventro-distally; plical lobe of hind wing and laterope of 1st tergite variable; maxillary and labial palpi with 6 and 3—4 segments, respectively; metasoma usually sparsely setose, less frequently densely and evenly setose; occipital carina present, at least laterally; postpectal carina absent or nearly so; hypopygium truncate apically, large to medium-sized; ovipositor straight or curved ventrad, usually with a small subapical notch.

Distribution. — Cosmopolitan. Contains three tribes: Meteorini Cresson, 1887; Centistini Čapek, 1970; Euphorini Foerster, 1862.

Tribus METEORINI Cresson

Cresson, 1887, Trans. Am. ent. Soc., Suppl.: 55, 60.

Syn.: Zelini Ashmead, 1900; Petiolarini Szépligeti, 1904; Zemiotini Van Achterberg, 1976.

Diagnosis. — Occipital carina complete; 3rd segment of labial palp reduced (figs. 809, 821) or (virtually) absent (figs. 759, 800); anterior tentorial pits deep, medium-sized (fig. 773) or large (fig. 781); mesopleuron more or less protruding antero-dorsally (fig. 772); medial lobe of mesoscutum more or less rounded anteriorly (figs. 755, 874); vein 2A of hind wing absent (fig. 388), or at most present as a vague stripe (figs. 750, 784); vein 2-R1 of fore wing absent (fig. 758), or (exceptionally) well developed (fig. 836); 1st tergite of metasoma petiolate and its spiracles situated submedially (figs. 754, 775, 852); vein r-m of fore wing present (fig. 18); 1st tergite widened apicad (figs. 754, 852).

Distribution. — Cosmopolitan. Contains two described genera: *Meteorus* Haliday, 1835, and *Zele* Curtis, 1832.

Genus **Zele** Curtis

Curtis, 1832, Br. Ent. 9: 415.
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 49.
Shenefelt, 1970, id. 5(2): 220.
Čapek, 1970, Can. Ent. 102: 848.
Fischer, 1970, Wiss. Arbeiten Bgld. 44: 254—300, figs. 3, 6.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 222—224.
Čapek, 1972, Ent. Problémy 10: 133, 134, 136, 138.
Mason, 1973, Proc. ent. Soc. Wash. 75: 213—215.
Jakimavičius, 1974, Tr. AN Lit. SSR B2(66): 97.
Van Achterberg, 1976b, Tijdschr. Ent. 119: 37, 50, figs. 107, 111.
Tobias, 1976, Opr. Fauna SSSR 110: 113, fig. 33: 14—16.

Type-species: *Zele testaceator* Curtis.

Synonyms: *Zemiotes* Foerster, 1862, **Syn. nov.**; *Protelus* Foerster, 1862, **Syn. nov.**;

Meteorus auct. p.p.

Diagnosis. — Length of body 4.1—10.3, of fore wing 3.9—10.8 mm; antennal segments 29—50; length of 3rd segment of antenna 0.9—1.2 times 4th segment; length of maxillary palp 1.0—1.5 times height of head; length of malar space 0.1—0.7 times basal width of mandible; mandible with a pair of (more or less) protruding thin lamelliform carinae (figs. 809, 858), more or less twisted apically; ventral margin of clypeus rather wide, lamelliform, straight medially and well differentiated from clypeus (figs. 765, 781); eyes bare, immarginate, more or less converging ventrad (figs. 765, 793, 830, 862), larger in ♂ than in ♀; epistomal suture complete (fig. 803); propleural lamellae more or less developed (figs. 785, 796); notauli complete (figs. 790, 849); side of scutellum more or less rugose (figs. 755, 808, 811); scutellum sculptured medio-posteriorly (figs. 755, 785); episternal scrobe medium-sized, elliptical (figs. 748, 778, 785); metapleural flange more or less lamelliform (figs. 748, 796); propodeal spiracle small and round (figs. 748, 796); propodeal tubercles absent; propodeum with a more or less developed anterior transverse carina (figs. 754, 762, 775, 801); vein m-cu of fore wing more or less antefurcal (figs. 750, 758, 784); 1st discal cell of fore wing shortly petiolate anteriorly (figs. 758, 768, 836); short remnant of vein 2A of fore wing present (figs. 814, 827, 846); marginal cell of hind wing widened apicad (figs. 784, 788); vein SR1 of fore wing straight; vein r of hind wing present (fig. 788) or absent (fig. 758); tarsal claws with a large submedial lobe (figs. 752, 757, 791); length of hind femur 3.8—7.6 times its width; length of 1st tergite 1.6—4.1 times its apical width, its dorsope more or less developed (figs. 762, 794); at least apical half of 3rd and following tergites densely setose (figs. 783, 794); 2nd and following tergites smooth, only in *gracilis* weakly coriaceous-punctulate (fig. 852); length of ovipositor sheath 0.19—0.60 times fore wing, slender (fig. 843); length of hind tibial spurs 0.3—0.4 times hind basitarsus, subequal.

Distribution. — Widespread, but absent in the Afrotropical and Australian regions. The distribution is rather similar to that of the subgenus *Oulophus* of the genus *Homolobus* and may be due to the same factors, e.g., a primarily Holarctic centre of speciation, combined with a secondary centre in the Neotropical area.

Biology. — Endoparasites of larvae of the Geometridae Pyralidae, Noctuidae, Lasiocampidae, Lymantriidae, Arctiidae, Limacodidae, and Saturniidae. Aberrant records from Tortricidae, Momphidae, Douglasiidae, Yponomeutidae, Lyonetiidae, Gelechiidae, Conchylidae, Pterophoridae and Nymphalidae need to be confirmed.

Note. — There is some confusion about the gender of the genus *Zele* Curtis. Because it is frequently used in generic combinations (*Austrozele, Palinzele, Neozele, Xiphozele,* all belonging to other subfamilies) certainty about its gender is required. The name *Zele* is a fantasy-name which takes the gender expressly attributed to it by its author. If no gender is assigned or implied, the name is to be treated as masculine unless the ending is clearly a natural classical feminine or neuter one when the gender is that appropriate to the ending (according to Article 30a(ii) of the International Code of Zoological Nomenclature). Curtis (1832: 415) did not expressly attribute a gender to his new genus, while of the ten species

included, only two may imply a certain gender of *Zele*, viz., *thoracicus*, and *longicauda* . Thus Curtis himself was uncertain about the gender, furthermore also the ending is not a natural classical feminine or neuter one. Therefore the name *Zele* (and the derived names as well) has to be treated as a masculine noun according to Article 30a(ii) of the International Code.

Key to the species of the genus *Zele*

1. Precoxal suture smooth or only narrowly sculptured (figs. 748, 758, 766), if intermediate, then length of ovipositor sheath ca. 0.2 times fore wing (fig. 756); vein 1-M of hind wing 0.7—1.1 times vein cu-a (figs. 750, 758), exceptionally somewhat shorter; 1st tergite usually comparatively stout (figs. 754, 762, 775); vein cu-a of fore wing postfurcal (fig. 768) 2
— Precoxal suture widely sculptured, at least anteriorly or medially (figs. 778, 785, 796), if intermediate, then vein 1-M of hind wing shorter than 0.7 times vein cu-a (figs. 836, 855) or vein cu-a of fore wing antefurcal (fig. 798); 1st tergite comparatively slender (figs. 824, 839, 852, 864) or length of ovipositor sheath ca. 0.3 times fore wing (fig. 853) 4
2. Length of ovipositor sheath 0.19—0.28 times fore wing (figs. 756, 767); hind femur slender (figs. 761, 774), its length 5.2—6.4 times its width 3
— Length of ovipositor sheath 0.38—0.39 times fore wing (fig. 748); hind femur somewhat swollen (fig. 751), its length 4.4—5.1 times its width; North Palaearctic . . . . . *annulicrus* (Thomson) (p. 363)
3. Body, hind tibia and its tarsus mainly dark reddish-brown; pterostigma of ♀ more or less brown; mesopleuron somewhat more sculptured (fig. 756); Palaearctic and North Nearctic . . . . . *caligatus* (Haliday) (p. 364)
— Body, pterostigma, and hind leg of ♀, yellowish; mesopleuron comparatively smooth (fig. 766); South Nearctic . . . . . *levis* (Muesebeck) (p. 365)
4. Scutellum protruding dorsad, with a tubercle (figs. 778, 785); laterope absent (figs. 778, 785); vertex punctate (figs. 779, 789) 5
— Scutellum at most rather strongly convex, without tubercle (figs. 796, 825); laterope present, at least shallowly (figs. 825, 843); vertex smooth or punctulate (fig. 850) 6
5. Tubercle of scutellum rounded apically (figs. 778, 780); dorsope of 1st tergite well developed (fig. 783); wing membrane hyaline; hind tibia brownish, only with blackish setae; South Neotropical . . . . . *punctatus* spec. nov. (p. 367)
— Tubercle of scutellum sharp apically (figs. 785, 795); dorsope almost absent (fig. 794); wing membrane light brownish; apical 0.7 of hind tibia (at least in ♂) blackish; North Neotropical . . . . . *tuberculifer* spec. nov. (p. 368)
6. Length of ovipositor sheath 0.41—0.60 times fore wing, longer than 1.5 times 1st tergite of metasoma (figs. 796, 815); vein cu-a of fore wing antefurcal (figs. 798, 814), exceptionally interstitial 7
— Length of ovipositor sheath 0.19—0.33 (exceptionally 0.37) times fore wing, shorter than 1.5 times length of 1st tergite (figs. 825, 834, 843, 853); vein cu-a of fore wing postfurcal (figs. 827, 855), seldom (sub)interstitial (fig. 836), and

exceptionally shortly antefurcal 9

7. Hind tarsus yellowish; eyes somewhat smaller, their dorsal length in ♀ 1.3—2.1 (in ♂ 1.2—1.6) times length of temple (fig. 817); West and Middle Palaearctic . . . . . *chlorophthalmus* (Spinola) (p. 370)
— Hind tarsus whitish; eyes of ♀ comparatively large, their dorsal length 2.4—3.2 (in ♂ 1.8—2.3) times length of temple (fig. 892); (*niveitarsis* Cresson s.l.) 8
8. Hind tibia and pterostigma mainly dark brown; East Palaearctic and Oriental . . . . . *niveitarsis* f. *peronatus* (Shestakov) (p. 370)
— Hind tibia and pterostigma mainly brownish-yellow; Nearctic . . . . . *niveitarsis* f. *niveitarsis* (Cresson) (p. 369)
9. Scutellum rather strongly convex (figs. 811, 825); surroundings of veins 1-M, 1-CU1, and r of fore wing dark brown pigmented (fig. 827); basal two-thirds of hind tibia, all trochanters and trochantelli, white; pterostigma of ♀ dark brown, with base and apex whitish; malar space of ♀ very short, its length 0.1 times basal width of mandible (fig. 830); South Nearctic . . . . . *picinervis* spec. nov. (p. 373)
— Scutellum weakly convex (fig. 834); surroundings of veins 1-M, 1-CU1 and r of fore wing hyaline or faintly brownish; basal half of hind tibia, all trochanters and trochantelli, yellowish or dark brown; pterostigma of ♀ uniformly yellowish or dark brown; length of malar space of ♀ 0.3—0.4 times basal width of mandible, somewhat longer (figs. 842, 862) 10
10. Hind femur stout, its length 3.8—4.4 times its maximum width (fig. 840); head more transverse (fig. 838); vein 2-R1 of fore wing well-developed, somewhat longer than vein r (fig. 836); Nearctic . . . *crassifemur* (Muesebeck) (p. 374)
— Hind femur slender, its length 5.1—7.6 times its maximum width (fig. 860); head less transverse (figs. 850, 863); vein 2-R1 of fore wing rather short, usually shorter than vein r (figs. 846, 855) 11
11. Length of vein r of fore wing 1.1—1.2 times vein 3-SR (fig. 846); 2nd tergite evenly setose and finely coriaceous-punctulate (fig. 852); base of 1ste tergite and ventral half of temple, yellowish white; length of ovipositor sheath ca. 0.37 times fore wing (fig. 843); South Palaearctic . . . . *gracilis* spec. nov. (p. 375)
— Length of vein r of fore wing 0.3-0.6 times vein 3-SR (figs. 855, 868); at least basal half of 2nd tergite bare and smooth (fig. 853); base of 1st tergite and ventral half of temple, brownish-yellow or blackish; length of ovipositor sheath 0.19—0.33 times fore wing (fig. 853); Holarctic; (*albiditarsus* Curtis s.l.) 12
12. Length of vein 1-M of hind wing 0.9—1.3 times cu-a, subequal (fig. 868) . . . . *albiditarsus* f. *pallitarsis* (Cresson) (p. 379)
— Length of vein 1-M of hind wing 0.3—0.8 times vein cu-a, usually much shorter than cu-a (fig. 855) 13
13. Middle of hind tarsus yellowish or infuscated, if intermediate, then similarly coloured as middle of hind femur; length of fore wing usually less than 8 mm . . . . . *albiditarsus* f. *deceptor* (Wesmael) (p. 377)
— Middle of hind tarsus white or whitish-yellow, lighter coloured than middle of

hind femur; length of fore wing usually more than 8 mm . . . . . *albiditarsus* f. *albiditarsus* Curtis (p. 380)

Zele annulicrus (Thomson) comb. nov.
(figs. 748—755)

Thomson, 1895, Opusc. ent. 20: 2161 (as *Meteorus*).
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 52, 53.
Fischer, 1970, Wiss. Arbeiten Bgld. 44: 258.

Lectotype, ♀, length of body 4.2, of fore wing 4.4 mm.

Head. — Remaining antennal segments 11, 3rd segment 0.9 times 4th segment, length of 3rd and 4th segments 3.4 and 3.6 times their width, respectively; length of maxillary palp 1.1 times height of head; dorsal length of eye 1.4 times temple; temple weakly roundly narrowed posteriad (fig. 749); POL : ∅ ocellus : OOL = 14 : 5 : 6; frons weakly concave, smooth; vertex convex, punctulate; face weakly convex, indistinctly punctulate; clypeus strongly convex, punctate (fig. 753); length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.5 times its height; side of pronotum largely smooth, medially crenulate and ventro-anteriorly and posteriorly rugose (fig. 748); epicnemial area crenulate anteriorly, dorsally rugose near posterior subalar depression; precoxal suture narrowly crenulate medially (fig. 748); metapleural flange medium-sized, apically lamelliform and rounded (fig. 748); metapleuron almost smooth, ventrally rugose; notauli indistinctly crenulate, narrow (fig. 755); mesoscutal lobes slightly punctulate; scutellum convex, punctulate; surface of propodeum with a small areola medio-anteriorly and a well-developed medial carina and costulae (fig. 754), its surroundings almost smooth; posterior part of propodeum not separated from antero-dorsal part (fig. 748).

Wings. — Fore wing: r : 3-SR : SR1 = 4 : 7 : 37; cu-a postfurcal; 1-CU1 : 2-CU1 = 2 : 15; 2-SR : 3-SR : r-m = 10 : 7 : 7. Hind wing: r mainly absent (fig. 750); length of 1-M 0.9 times cu-a.

Legs. — Hind coxa punctulate; hind femur somewhat curved (fig. 751); length of femur, tibia, and basitarsus of hind leg 4.4, 10.2 and 8.6 times their width, respectively.

Metasoma. — Length of 1st tergite 1.6 times its apical width, its surface superficially and remotely striate (fig. 754); dorsal carinae present in front of spiracles; dorsope and laterope large and deep; 2nd tergite smooth and bare; length of ovipositor sheath 0.38 times fore wing.

Colour. — Dark brown; scapus, pedicellus, clypeus, labrum, mandibles mainly, palpi, pterostigma, tegulae, postero-dorsal corner of pronotum, and legs, yellowish; hind tibia basally whitish, its apical three-quarters and hind tarsus darkened.

Lectotype in ZIL, Lund: "Hbg", "*Meteorus annulicrus* Th., Type, det. Fischer", "1977, 39". Paralectotypes: 4 specimens, of which 1 ♀ and 2 ♂ were examined. 1 ♂, "Hall."; 1 ♀, "Bö.", and 1 ♂, "Riht", all ZIL. Variation: Antennal segments 31; length of fore wing 4.6—4.7 mm; length of 1st tergite 1.6—1.7 times its apical

width; length of hind femur 4.4—5.1 times its apical width; length of ovipositor sheath 0.38—0.39 times fore wing; pterostigma of ♂ dark brown.

Zele caligatus (Haliday) comb. nov.
(figs. 756—765)

Haliday, 1835, Ent. Mag. 3: 25 (as *Meteorus*).
Ruthe, 1862, Berl. ent. Z. 6: 22, 23 (*Meteorus neesii*).
Ashmead, 1902, Proc. Wash. Acad. Sci. 4: 247 (*Dyscoletes alaskensis*). **Syn. nov.**
Fahringer, 1930, Ark. Zool. 21A: 8 (*Meteorus caligatus* var. *sibiricus*). **Syn. nov.**
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 51, 55, 56.
Fischer, 1970, Wiss. Arbeiten Bgld. 44: 258.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 222.
Mason, 1973, Proc. ent. Soc. Wash. 75: 214.

Lectotype, ♀, length of body 5.1, of fore wing 5.3 mm.

Head. — Antennal segments 35, 3rd segment equal to 4th segment, length of 3rd and 4th segments both 3.2 times their width, length of both penultimate segments 1.3 and 1.6 times their width; length of maxillary palp 1.3 times height of head; dorsal length of eye 2.0 times temple; temple roundly narrowed posteriad (fig. 760); POL : ∅ ocellus : OOL = 7 : 4 : 5; frons smooth, but with some rugosity near antennal sockets, almost flat; vertex convex, weakly punctulate; face rather flat, punctate medially and near antennal sockets, laterally punctulate (fig. 765); clypeus convex, punctate; length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum largely punctulate, antero-medially and apically crenulate and indistinctly rugose ventrally (fig. 756); epicnemial area mainly smooth, rugose postero-dorsally; precoxal suture narrowly and irregular crenulate, anteriorly and posteriorly almost smooth (fig. 756); metapleural flange medium-sized, narrowly lamelliform apically (fig. 756); metapleuron reticulate, only dorsally almost smooth; notauli narrowly crenulate (fig. 764); mesoscutal lobes indistinctly punctulate; scutellum rather convex, weakly punctulate; surface of propodeum mainly smooth anteriorly, except for a weakly developed transverse carina and a short part of the medial carina (fig. 762), posteriorly rugose; posterior part of propodeum not separated from its antero-dorsal part (fig. 756).

Wings. — Fore wing: r : 3-SR : SR1 = 10 : 24 : 114; cu-a postfurcal; 1-CU1 : 2-CU1 = 1 : 20; 2-SR : 3-SR : r-m = 19 : 12 : 12. Hind wing: r absent; length of 1-M 0.9 times cu-a.

Legs. — Hind coxa weakly punctulate; hind femur rather straight (fig. 761); length of femur, tibia and basitarsus of hind leg 5.3, 10.2 and 7.7 times their width, respectively.

Metasoma. — Length of 1st tergite 1.7 times its apical width, its surface indistinctly rugulose, almost smooth (fig. 762); dorsal carinae of 1st tergite absent; laterope and dorsope large and deep (fig. 756); 2nd tergite mainly bare and smooth; length of ovipositor sheath 0.19 times fore wing.

Colour. — Dark reddish-brown; palpi, mandibles, clypeus ventrally, antenna (except apically), tegulae, dorso-posterior corner of pronotum, legs (but hind tibia

and tarsus mainly infuscated), 2nd and 3rd tergites and their sternites, apex of hypopygium, apex of ovipositor sheath, yellowish; pterostigma brown; hind tibia basally with a whitish ring.

Lectotype in NMI, Dublin: "Jullymore", "Ireland, Haliday, 20.2.82/Box 8, A.W.S.", "*Meteorus caligatus* Hal., det. Muesebeck", "*Meteorus caligatus* Hal., ♀, Type!, AWS. 29.7.1948". Lectotype of *Perilitus neesii* Ruthe, 1862, in BM, London: ♀, "Type H.T.", "B.M. type Hym., 3.c.758", "em. Type. Hym. *Meteorus neesii* Ruthe, 1862", "*P. Neesii* m.", "*P. neesii* Rut.", "59.101 Germany", "Ruthe Coll. 59.101". Holotype of *Meteorus sibiricus* Fahringer, 1930, in NR, Stockholm: ♀, "Kamtschatka, Malaise", "1870", "*Meteorus* ♀ *caligatus* Hal. var. *sibiricus* m." (in Fahringer's handwriting), "405, 77", "Riksmuseum Stockholm". Holotype of *Dyscoletes alaskensis* Ashmead, 1902, in USNM, Washington: ♂, "Popoff Island, Alaska, July 11", "99", "Harriman Expedition '99, T. Kincaid, Collector", "♂, Type, No. 5703, U.S.N.M.", "*Dyscoletes alaskensis* Ashm. ♂" (in Ashmead's handwriting). These three holotypes were examined and proved to be rather typical specimens of *caligatus*.

Additional specimens examined: 26 ♀ and 18 ♂. From the Palaearctic region: Finland (Sääksmäki, Kivirikko; Kenru), Denmark (no locality), USSR (Irkutskaja obl., S. Siberia), Japan (Mt. Arakura, 1300 m; Kamitakai, 800 m, both Nagano), and Italy (Campi, Riva s. Garda, 1200 m) (CNC, HC, WHC, RMNH, UZM). From the Nearctic region: Alaska (Haines), North West Territories (Norman Walls), British Columbia (Woodfibre; Gison's Landing; Triumph Bay; Coquitlan L.; Seymour Cr.; Squamish; Canyon Cr.; Harrison L.; Hixon; Howe Sound), Alberta (E. Jaspar Gate; Clearwater), Ontario (Stittsville), Quebec (Mt. Lyall), and Newfoundland (St. Georges) (CNC, USNM, RMNM).

Variation: Length of fore wing 4.6—5.9 mm; antennal segments 35—37; length of ovipositor sheath 0.19—0.28 times fore wing; length of malar space 0.4 times basal width of mandible; length of hind femur 5.2—6.1 times its width; length of 1st tergite 1.7—1.8 times its apical width; length of vein 1-M of hind wing 0.6—1.0 times vein cu-a of hind wing; cocoon whitish.

Known hosts of examined specimens belong all to the genus *Eupithecia* (Geometridae, Lepidoptera): *E. luteata* Packard, *E. palpata* Packard, *E. ?usurpata* Pears., *E. satyrata* (Hübner), *E. filmata* Pears., and *E. indigata* (Hübner).

Zele levis (Muesebeck) comb. nov.
(figs. 766-776)

Muesebeck, 1923, Proc. U.S. natn. Mus. 63: 11 (as *Meteorus*).
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 76.

Holotype, ♀, length of body 4.5, of fore wing 5.0 mm.

Head. — Antennal segments 29, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 5.0 and 4.2 times their width, respectively, length of both penultimate segments 1.7 times their width (fig. 767); length of maxillary palp 1.3 times height of head; dorsal length of eye 2.1 times temple; temple roundly narrowed posteriad (fig.770); POL : ∅ ocellus : OOL = 14 : 9 : 8; frons almost flat,

smooth; vertex weakly convex, smooth; face rather flat, somewhat weakly punctulate; clypeus convex, almost smooth (fig. 773); length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum densely punctulate, with some crenulae medially and some striae apically (fig. 766); epicnemial area largely smooth, postero-dorsally punctate-rugulose; precoxal suture smooth, except for some short crenulae medially (fig. 766); metapleural flange rather large, lamelliform; metapleuron largely smooth, ventrally punctulate; notauli indistinctly developed dorsally, almost smooth (but in other specimens finely rugose); mesoscutal lobes faintly punctulate; scutellum rather convex and punctulate; surface of propodeum finely rugose, only anteriorly smooth, anterior transverse carina well developed, and posteriorly with a short medial carina (fig. 775); posterior part of propodeum not separated from antero-dorsal part of propodeum (fig. 766).

Wings. — Fore wing: r : 3-SR : SR1 = 6 : 11 : 64; cu-a postfurcal; 1-CU1: 2-CU1 = 3 : 32; 2-SR : 3-SR : r-m = 16 : 11 : 10. Hind wing: r present posteriorly (fig. 768); length of 1-M 1.1 times cu-a.

Legs. — Hind coxa punctulate; length of femur, tibia and basitarsus of hind leg 6.4, 12.5, and 9.0 times their width, respectively.

Metasoma. — Length of 1st tergite 2.0 times its apical width, its surface striate and basally rugose (fig. 775); dorsal carinae of 1st tergite weakly developed in front of dorsope; dorsope and laterope deep and large (fig. 766, 775); 2nd tergite mainly bare and smooth; length of ovipositor sheath 0.19 times fore wing.

Colour. — Brownish-yellow; palpi and base of hind tibia, whitish; eyes greenish iridescent.

Holotype in CU, Ithaca: "Jemez Springs, IX.6-13, N.M., John Woodgate", "*Meteorus levis* Mues., Type, Det. Mues.", "Holotype Cornell U., No. 616.1". Additional specimens of *levis* examined: 6 ♀ and 1 ♂. From Mexico (Dgo., 3 mi. E. El Salto, 8500 ft; id., 10 mi. W. El Salto, 9000 ft; Chis., 9600 ft, Zontehuitz, nr. S. Christ.), California (Berkeley), and Wyoming (5 mi. W. New Castle, 4200 ft). Variation: Length of fore wing 5.0—5.9 mm; antennal segments 29—33; length of hind femur 6.3—6.4 times its width; length of vein 1-M of hind wing 0.8—1.1 times vein cu-a of hind wing; length of 1ste tergite 1.7—2.2 times its apical width; length of ovipositor sheath 0.19 times fore wing; ♂ from Mexico has pterostigma, metasoma basally and apically, propodeum, hind tibia (except its base) and hind tarsus, more or less dark brown (CNC, USNM, RMNH).

From Colombia (Caldas, 3300—3500 m (CNC)) I have examined 2 ♀ and 1 ♂ which are intermediate between *levis* and *caligatus*. The females have the shape of the 1st tergite and face of *levis*, and the hind leg and metasoma yellowish brownish (but 1st tergite infuscated). Head and mesosoma are mainly dark brown, the pterostigma is rather infuscated and the precoxal suture is narrowly and rather irregularly sculptured as in *caligatus*. The male is completely melanistic, with also the legs more or less infuscated. Further collecting is needed to make a decision about the synonymy of *levis* with *caligatus*.

Zele punctatus spec. nov.
(figs. 777—784, 813)

Holotype, ♀, length of body 8.6, of fore wing 8.4 mm.

Head. — Antenna absent except for scapus and pedicellus, 3rd segment of allotype 1.2 times 4th segment, and length of 3rd and 4th segment 3.9 and 3.2 times their width, respectively; maxillary palp subequal to height of head; dorsal length of eye 2.2 times temple; temple punctulate and roundly narrowed posteriad (fig. 779); POL : ∅ ocellus : OOL = 9 : 6 : 1; frons smooth, concave behind antennal sockets; vertex rather flat, punctate (fig. 779); face rather flat, densely punctate (fig. 781); clypeus strongly convex, coarsely punctate; length of malar space 0.3 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum largely reticulate-rugose, dorsally punctate and antero-medially crenulate (fig. 778); epicnemial area rugose-reticulate; precoxal suture crenulate-rugose dorsally (only rather smooth posteriorly) and coarsely reticulate-punctate ventrally (fig. 778), its surroundings punctate; metapleural flange large, lamelliform and rounded apically; metapleuron coarsely reticulate; notauli crenulate (fig. 782); mesoscutal lobes densely punctate (fig. 782); scutellum with rounded tubercle, punctate (fig. 778, 780); surface of propodeum coarsely reticulate, its medial carina rather weakly developed and without an areola; posterior part of propodeum rather separated from antero-dorsal part of propodeum (fig. 778).

Wings. — Fore wing: r : 3-SR : SR1 = 10 : 14 : 89; cu-a postfurcal; 1-CU1 : 2-CU1 = 2 : 17; 2-SR : 3-SR : r-m = 10 : 7 : 8. Hind wing: r faintly developed; length of 1-M 0.8 times cu-a.

Legs. — Hind coxa densely and coarsely punctate; length of femur, tibia and basitarsus of hind leg 5.6, 12.1 and 12.0 times their width.

Metasoma. — Length of 1st tergite 2.6 times its apical width, its surface smooth anteriorly, posterior half rugose (fig. 783); dorsal carinae of 1st tergite absent; laterope absent (fig. 778); dorsope deep, medium-sized (fig. 783); 2nd tergite mainly bare and smooth; length of ovipositor sheath 0.40 times fore wing.

Colour. — Brownish-yellow; hind tarsus (except the yellowish telotarsus) white; apical three-quarters of hind tibia blackish setose; ovipositor sheath dark brown; wing membrane hyaline; palpi somewhat infuscated.

Holotype in IML, Tucumán: "R. A. Tucuman, Aconguya, XI. (1)946, Coll. R. Golbach", "Inst. M. Lillo", "*Zemiotes* sp., Det. Muesebeck". Paratypes: 3 specimens, 1 specimen without metasoma, topotypic with holotype (IML); 1 ♂ (allotype, IML), "R. A. Tucuman, Dpto. Tafi, 18.XII.50, Coll. Golbach"; 1 ♂ (RMNH), topotypic with allotype.

Note. The protuberant scutellum indicates a relationship with the South Nearctic *Zele picinervis* spec. nov., but *punctatus* is more coarsely sculptured, has the wing membrane hyaline, and the ovipositor is longer.

Zele tuberculifer spec. nov.
(figs. 785—795, 812)

Holotype, ♂, length of body 9.0, of fore wing 7.8 mm.

Head. — Antennal segments 41, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 4.2 and 3.6 times their width, respectively, length of both penultimate segments 1.8 and 2.2 times their width; length of maxillary palp 1.1 times height of head; dorsal length of eye 2.2 times temple; temple roundly narrowed posteriad, punctulate (fig. 789); POL : ∅ ocellus : OOL = 19 : 11 : 6; frons deeply concave behind antennal sockets, mainly smooth; vertex punctate; face rather flat, densely reticulate-rugose (fig. 793); clypeus strongly convex, reticulate-rugose; length of malar space 0.5 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.5 times its height; side of pronotum densely punctate, medially coarsely crenulate and ventrally reticulate-rugose (fig. 785); epicnemial area anteriorly rather smooth, posteriorly rugose; precoxal suture dorsally narrowly crenulate, medially and ventrally rather coarsely punctate (fig. 785); metapleural flange large, wide, truncate and lamelliform apically; metapleuron coarsely rugose-reticulate; notauli remotely and widely crenulate (fig. 790); mesoscutal lobes densely punctulate; scutellum with a sharp tubercle and punctate (figs. 785, 790, 795); surface of propodeum coarsely reticulate, with a medial carina; posterior part of propodeum separated from antero-dorsal part of propodeum (fig. 785).

Wings. — Fore wing: r : 3-SR : SR1 = 13 : 16 : 94; cu-a postfurcal; 1-CU1 : 2-CU1 = 1 : 16; 2-SR : 3-SR : r-m = 9 : 8 : 7. Hind wing: r present as a brownish stripe (fig. 788); length of 1-M 0.9 times cu-a.

Legs. — Hind coxa densely and coarsely punctate (fig. 785); length of femur, tibia and basitarsus of hind leg 6.1, 11.6 and 10.0 times their width, respectively.

Metasoma. — Length of 1st tergite 2.8 times its apical width, its surface smooth anteriorly, but posteriorly (behind the spiracles) rugulose (fig. 794); dorsal carinae of 1st tergite absent; laterope absent; dorsope almost absent (fig. 799); 2nd tergite mainly bare and smooth.

Colour. — Reddish-brown; pterostigma, wing veins, antenna (but scapus and antenna medially more brownish), and posterior two-thirds of hind tibia, mainly dark brown or blackish; hind tarsus (except telotarsus) yellowish-white; wing membrane light brownish.

Holotype in RMNH, Leiden: "Museum Leiden, North Panama, 1050 m, Fortuna, Chiriqui, 8°44′, 82°15′W, 19.X.1976, H. Wolda, at light".

Zele niveitarsis (Cresson) comb. nov.
(figs. 796—807)

Cresson, 1872, Can. Ent. 4: 81 (as *Perilitus*).
Shestakov, 1940, Ark. Zool. 32A: 16 (*Meteorus peronatus*). **Syn. nov.**
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 82, 86.
Čapek, 1970, Can. Ent. 102: 848.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 222.
Mason, 1973, Proc. ent. Soc. Wash. 75: 214.

Zele niveitarsis f. **niveitarsis** (Cresson)
(figs. 796—807)

Lectotype, ♀, length of body 7.5, of fore wing 6.7 mm.

Head. — Antennal segments 40, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 3.6 and 3.4 times their width, respectively, length of both penultimate segments 2.0 times their width; length of maxillary palp 1.2 times height of head; dorsal length of eye 3.0 times temple; temple rather directly narrowed posteriad (fig. 802); POL : ∅ ocellus : OOL = 8 : 6 : 2; frons concave, with some striae anteriorly; vertex rather flat, punctulate; face flat, finely and densely punctate (fig. 803); clypeus convex and remotely punctate; length of malar space 0.2 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum largely reticulate-rugose, with some crenulae antero-medially, and dorsally smooth (fig. 796); epicnemial area largely smooth, anteriorly crenulate; precoxal suture densely punctate, dorsally narrowly crenulate (fig. 796); metapleural flange large, rounded and narrowly lamelliform apically (fig. 796); metapleuron coarsely reticulate; notauli finely crenulate (fig. 807); mesoscutal lobes finely and densely punctulate; scutellum convex, finely punctulate; surface of propodeum with a long medial carina anteriorly, and rest of surface remotely and coarsely reticulate and areolate (fig. 801); posterior part of propodeum separated from antero-dorsal part of propodeum (fig. 796).

Wings. — Fore wing: r : 3-SR : SR1 = 4 : 11 : 45; cu-a antefurcal; 2-M + CU1 : 1 + 2-CU1 = 1 : 18; 2-SR : 3-SR : r-m = 13 : 11 : 7. Hind wing: r present, weakly pigmented (fig. 798); length of 1-M 0.7 times cu-a.

Legs. — Hind coxa weakly punctate; length of femur, tibia and basitarsus of hind leg 5.1, 11.8, and 12.2 times their width, respectively.

Metasoma. — Length of 1st tergite 2.1 times its apical width, its surface transversely rugose basally, more irregularly and remotely rugose posteriorly (fig. 801); dorsal carinae present in front of laterope; laterope and dorsope deep and large (fig. 796, 801); 2nd tergite only medially setose, smooth; length of ovipositor sheath 0.43 times fore wing.

Colour. — Brownish-yellow; all tibiae basally and entire tarsi, white or nearly so; telotarsi, hind tibia medially and apically, and antenna, somewhat darkened; pterostigma and tegulae, light yellowish; stemmaticum and ovipositor sheath, dark brown; tip of ovipositor sheath indistinctly yellowish; wings hyaline; eyes greenish iridescent.

Lectotype in ANSP, Philadelphia: "Mass.", "Type No. 1766", "*Perilitus niveitarsis* Cr./*Perilitus albitarsis* Cresson". Paralectotypes: 1 ♀ and 3 ♂, topotypic, not examined. Additional specimens examined (15 ♀ and 8 ♂) from the Nearctic region: Ontario (Blackbury; Ft. Francis), Quebec (Quebec; Tenaga); Nova Scotia (Smith's Cove), Massachusetts (Williamstown; Sterking), New Jersey (Moorestown), Main (Bar Harbor; Augusto; Mt. Desert), New York (Orient; Riverhead), Kansas (Riley Co.), Wisconsin (Gibson Lake, Polk Co.), and Connecticut (Stafford Springs) (USNM, CNC, RMNH).

Variation: Dorsal length of eye of ♀ 2.4—3.2 times temple (1.8—2.3 times in ♂); length of ovipositor sheath 0.42—0.60 times fore wing, longer than 1.5 times 1st tergite; length of vein 1-M of hind wing 0.7—0.8 times vein cu-a; sometimes head posteriorly, stemmaticum and mesosoma anteriorly more or less dark brown and hind tibia blackish apically; hind tibia of ♂ and antenna mainly dark brown or yellowish brown; pterostigma light brown; vein cu-a of fore wing antefurcal or interstitial. The dense silken cocoon is whitish, spindle-shaped, in a darker and larger lepidopterous cocoon.

Known hosts of examined specimens belong all to the Pyralidae (Lepidoptera): *Salebria virgatella* (Clements) on *Robinia*, *S. contatella* Grote, *Acrobasis rubrifasciella* Packard on *Alnus*; *A. betulella* Hulst, *A. ostryella* (?), *A. sylviella* (?), *A. comptomiella* Hulst, and *Meroptera pravella* (Grote).

Zele niveitarsis f. **peronatus** (Shestakov)

Holotype, ♀, length of fore wing 5.9 mm; dorsal length of eye 2.4 times temple; vein cu-a of fore wing antefurcal; 2-M + CU1 : 1 + 2-CU1 = 5 : 66; vein 1-M of hind wing 0.4 times vein cu-a; antennal segments 39; length of ovipositor sheath 0.46 times fore wing and 1.7 times length of 1st tergite; pterostigma and body, dark brown; 1st tergite basally, mesopleuron dorsally, face, clypeus, and basal half of antenna, brownish; fore and middle legs, tegulae, and hind trochanters, yellowish; apical three-quarters of hind tibia dark brown, its basal quarter yellowish white; hind coxa and its femur, brown; hind tarsus mainly white, but basally dark brown.

Holotype in NR, Stockholm: "Vladivost., Sedanka/10/8, 1930, Malaise", "*Meteorus peronatus* sp. n. typ., det. Shestakov", "Holotype of *peronatus* Shestakov, det. T. Huddleston, 1976", "406, 77", "Riksmuseum Stockholm".

Additional specimens examined: 1 ♀ from Sumatra (N. Sumatra, Bivouac 3, Mt. Bandahara, ca. 1810 m, 3°45'N, 95°45'E, 10—16.VII.1975, J. Krikken, no. 25 (RMNH, 1 ♀ (ex *E. pylonitis* (?)) and 1 ♂ (ex *D. abietella* (?)) from Lower Topa (?) (both USNM). Variation: Length of fore wing 5.9—8.1 mm; antennal segments 39—43; length of 1st tergite 2.3—2.8 times its apical width; length of ovipositor sheath 0.46—0.50 times fore wing; dorsal length of eye 2.4—3.1 times temple (1.8 times in ♂).

Zele chlorophthalmus (Spinola) comb. nov.
(figs. 814—824)

Spinola, 1808, Insect. Liguriae 2: 133, 134 (as *Bracon*).
Nees, (1811) 1812, Mag. Ges. nat. Fr. Berl. 5: 21 (*Bracon chrysophthalmus*). **Syn. nov.**
Thunberg, 1822, Mem. Acad. sci. St. Petersbourg 8: 263 (*Ichneumon nudator*). **Syn. nov.**
Costa, 1884, Rc. Accad. Sci. fis. mat., Napoli 22: 171 (*Meteorus splendens*). **Syn. nov.**
Thomson, 1895, Opusc. ent. 20: 2150 (*Meteorus* (*Zemiotes*) *nigricollis*). **Syn. nov.**
Wagner, 1928, Ver. naturw. Unterh. Hamb. 20: 7.
Cavro, 1954, Suppl. Bull. Soc. ent. N. Fr. 75: 109.
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 58, 59, 81, 82.
Shenefelt, 1970, id. 5(2): 222.
Fischer, 1970, Wiss. Arbeiten Bgld. 44: 258, 268—270.

Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 223.
Čapek, 1972, Ent. Problémy 10: 134, 136.
Mason, 1973, Proc. ent. Soc. Wash. 75: 213—215.
Tobias, 1976, Opr. Fauna SSSR 110: 113, fig. 33: 14, 15.

Neotype, ♀, length of body 7.4, of fore wing 6.4 mm.

Head. — Antennal segments 39, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 4.2 and 4.0 times their width, respectively, length of both penultimate segments 2.0 and 2.3 times their width (fig. 819); length of maxillary palp 1.2 times height of head; temple weakly roundly narrowed posteriad (fig. 817); dorsal length of eye 1.3 times temple (fig. 817); POL : ∅ ocellus : OOL = 12 : 9 : 6; frons mainly smooth, weakly concave; vertex convex, slightly punctulate; face rather flat, punctulate; clypeus convex and punctate; length of malar space 0.1 times basal width of mandible, eyes almost touching mandibular condylus.

Mesosoma. — Length of mesosoma 1.5 times its height; side of pronotum punctulate, medially and ventrally reticulate-rugose (fig. 815); epicnemial area crenulate anteriorly and posteriorly punctate-rugose; precoxal suture widely reticulate-punctate, dorsally indistinctly crenulate (fig. 815); metapleural flange rather large, lamelliform apically; metapleuron largely rugose-reticulate, dorsally weakly sculptured notauli rather widely crenulate (fig. 818); mesoscutal lobes punctulate; scutellum rather convex, punctulate; surface of propodeum rather coarsely reticulate-rugose, only smooth anteriorly (fig. 824), with a medial carina; posterior part of propodeum not separated from antero-dorsal part (fig. 815).

Wings. — Fore wing: r : 3-SR : SR1 = 7 : 15 : 70; cu-a antefurcal; 2-M + CU1 : 1 + 2-CU1 = 3 : 52; 2-SR : 3-SR : r-m = 24 : 15 : 14. Hind wing: remnant of r present (fig. 814); length of 1-M 0.7 times cu-a.

Legs. — Hind coxa punctulate; length of femur, tibia and basitarsus of hind leg 6.2, 12.5, and 12.0 times their width, respectively.

Metasoma. — Length of 1st tergite 2.4 times its apical width, its surface behind dorsope rugulose-punctate (fig. 824); dorsal carinae short anteriorly, in front of dorsope; laterope large and deep (fig. 815); dorsope medium-sized, deep (fig. 824); 2nd tergite mainly bare and smooth; length of ovipositor sheath 0.42 times fore wing.

Colour. — Brownish-yellow; apical half of antenna and ovipositor sheath (except the apex) dark brown; eyes greenish iridescent.

Neotype of *Bracon chlorophthalmus* Spinola to be deposited in the collection of RMNH, Leiden: "Holland, Asperen, 8.IX.1972, C. J. Zwakhals", "♀, *M.* (*Zemiotes*) *chrysophthalmus* (Nees), det. C. v. Achterberg, 1973".

According to Mr. T. Huddleston, who kindly examined the holotype of *Meteorus splendens* Costa, 1884 (♀, Museum of Naples), *splendens* agrees with my interpretation of *chlorophthalmus*. Length of fore wing 4.0 mm, length of ovipositor sheath 0.44 times fore wing and 1.9 times length of 1st tergite, propodeum postero-dorsally and anterior half of 1st tergite darker than rest of body (blackish according to Costa). The type bears two labels: "Decimoputzu 4" and "*Meteorus splendens*" (the latter in what is probably Costa's handwriting). The type-locality is situated at the South of Sardinia, nr. Cagliari.

Mr. Huddleston also examined the holotype of *Ichneumon nudator* Thunberg, 1822 (♂, Thunberg Collection, Uppsala), which proved to have been correctly synonymized with *Bracon chrysophthalmus* Nees in the past. The holotype of *Meteorus* (*Zemiotes*) *nigricollis* Thomson, 1895 (♀, ZIL, Lund: "Degeberga", "*nigricollis* m.", "holotype *Meteorus* (*Zemiotes*) *nigricollis* T., det. T. Huddleston, 1976", "1977, 40") agrees well with the neotype of *chlorophthalmus*. The eyes are slightly less convex, length of eye 1.3 times temple, POL : ⌀ ocellus : OOL = 16 : 9 : 9, frons striate anteriorly, length of fore wing 6.4 mm, length of ovipositor sheath 0.50 times fore wing, length of 1st tergite 2.2 times its apical width, mesosoma mainly dark brown, middle of frons and vertex faintly infuscated.

The type of *Bracon chrysophthalmus* Nees, 1812, is lost; a neotype is selected from the Wesmael Collection, because Wesmael is the first revisor of this species. The neotype of *chrysophthalmus* (♀, KBIN, Brussels: "Coll. Wesmael", "1743", "*Perilitus* ♂♀ *chrysophthalmus* N. v. Es., det. C. Wesmael", "type") agrees well with the descriptions by Nees and Wesmael (1835: 24—26) and with the neotype of *chlorophthalmus*: length of fore wing 6.0 mm, length of ovipositor sheath 0.49 times fore wing, eyes rather flat, and length of malar space 0.3 times basal width of mandible.

Additional specimens examined (89 ♀ and 41 ♂) from: Finland (U. Mellunkylä; Mariehamn), Sweden (Degeberga), Denmark (Bornholm; Nordsjølland; Sj. Jungshoved; Ebsjorg; Allnye; Adserbo; Stube in Sondbg), England (Dartmoor, SD, Lustleigh; Hants., Hawkley Warren; Whetstone, Hertfordshire; Southampton; Berks., Windsor Forest; SR, Claygate; H., Bricket Wood), Netherlands (Oostkapelle; Melissant; Oostvoorne; nr. Breda; Heerde (G.); Putten (G.); Meijendel; Castelre; Udenhout; Savelsbos; Tilburg; Assel; Crailo; Venlo; Bergen op Zoom; Gliphoeve; Tegelen; Zundert, De Krochten; Meinweg, Melick & Herkenbosch; Texel, landside dunes nr. Fonteinsnol; St. Pietersberg (ex *Crataegus* stem); Middelharnis; Naardermeer, Ouddorp; Wijster; Veenhuizen; Herpen; Voorburg; Berghem), West Germany (Annatal nr. Honnef, Siebengeb.; nr. Eichstadt); Czechoslovakia (B. Štiavnica), Austria (Piesting; Leitha Geb.; Donnerskirchen; Innsbruck), Poland (Gdansk), USSR (Tsav, Armenia; MSSR, Benderespsjij; Moldavia, C. Choresji, garden; Jonava, Dukstas), Bulgaria (Rodopi, Nicoloro); France (Baton; Lille Nord; Tours; Paris), and Spain (Santander, Potes; 25 km SW Salou) (RMNH, LH, CVR, BM, CNC, UZM, ITZ, ZMH, ZMB, HC, USNM, ZIL, IZP). Variation: Length of fore wing 4.0—6.8 mm; antennal segments 36—42; dorsal length of eye of ♀ 1.3—2.1 times temple (1.2—1.6 times in ♂); length of 1st tergite 2.1—2.4 times its apical width; length of ovipositor sheath 0.41—0.53 times fore wing; vein cu-a of fore wing antefurcal or interstitial; body colour variable, varies from completely yellowish or brownish to mainly dark brown of blackish. Cocoon whitish.

Notes. Known hosts of examined specimens belong to the Pyralidae (Lepidoptera): *Acrobasis consociella* (Hübner) and *R. formosa* (?= *Salebria formosa* Haworth) and to the Zygaenidae (Lepidoptera): *Zygaena lonicerae* (Esp.).

The application of the name *chlorophthalmus* in the Braconidae has led to a lot of confusion and misinterpretation. The name was first used by Spinola in 1808, but

the type is lost according to information kindly provided by Prof. Dr. C. Vidano and Dr. P. Passerin d'Entrèves. Luckely the original description by Spinola is comparatively clear: the petiolate metasoma, the long ovipositor (about as long as metasoma), vein m-cu of fore wing about interstitial and the size (ca. 7 mm) indicate its synonymy with *Zele chrysophthalmus* (Nees). Nees (1812: 21) clearly made a mistake by attributing the name *chrysophthalmus* to Spinola, when no such name was published by Spinola. Probably it was a miswriting of *chlorophthalmus* but actually he created a new binomen. In 1834 (p. 35) he exacerbated the situation by retaining his *chrysophthalmus* and misinterpreting *chlorophthalmus* for a species of *Homolobus* which differs by e.g., a sessile metasoma. Finally the name *chlorophthalmus* was misapplied by Haliday for what is now known as *Homolobus flagitator* (Curtis).

Zele picinervis spec. nov.
(figs. 811, 825—833)

Holotype, ♀, length of body and of fore wing both 8.9 mm.

Head. — Antennal segments 42, 3rd segment 1.2 times 4th segment, length of 3rd and 4th segments 3.7 and 3.1 times their width, respectively, length of both penultimate segments 2.0 and 2.3 times their width (fig. 832); length of maxillary palp 1.3 times height of head; dorsal length of eye 2.7 times temple; temple roundly narrowed posteriad (fig. 831); POL : ∅ ocellus : OOL = 9 : 6 : 4; frons weakly concave, mainly smooth; vertex weakly convex, punctulate; face flat, indistinctly punctulate; clypeus strongly convex (fig. 825), punctulate; length of malar space 0.1 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.3 times its height; side of pronotum densely rugulose ventrally and posteriorly, crenulate medially, punctulate dorsally (fig. 825); epicnemial area slightly punctulate-rugulose; precoxal suture widely rugose-punctate, only dorsally narrowly crenulate (fig. 825); metapleural flange large, lamelliform (fig. 825); metapleuron coarsely rugose-reticulate; notauli anteriorly narrowly crenulate, posteriorly widely crenulate-rugose (fig. 811); mesoscutal lobes densely punctulate; scutellum rather strongly convex (fig. 811, 825), without tubercle, mainly smooth; surface of propodeum coarsely carinate, anteriorly with an almost straight transverse carina, medially with a long longitudinal carina, enclosed areas weakly rugose; posterior part of propodeum not separated from antero-dorsal part (fig. 825).

Wings. — Fore wing: r : 3-SR : SR1 = 6 : 15 : 51; cu-a postfurcal, somewhat inclivous (fig. 827); 1-CU1 : 2-CU1 = 1 : 22; 2-SR : 3-SR : r-m = 13 : 15 : 9. Hind wing: r mainly absent; 1r-m weakly curved (fig. 827); length of 1-M 0.8 times cu-a.

Legs. — Hind coxa punctulate; length of femur, tibia and basitarsus of hind leg 5.9, 11.8, and 9.0 times their width, respectively.

Metasoma. — Length of 1st tergite 2.6 times its apical width, its surface smooth, except for some rugulosity behind spiracles (fig. 833); dorsal carinae of 1st tergite absent; laterope and dorsope deep and large (fig. 825, 833); 2nd tergite evenly and densely setose, bare; length of ovipositor sheath 0.24 times fore wing.

Colour. — Brownish-yellow; all trochanters and trochantelli (but apex of hind trochantellus dark brown), base of fore and middle tibiae and tarsi, apex of parastigma and pterostigma, basal quarter of pterostigma, basal two-thirds of hind tibia, its spurs and tarsus, white or nearly so; pterostigma medially, veins 1-M, cu-a, CU1, 1-SR+M, 2-SR and r of fore wing, and apical third of hind tibia, dark brown; palpi and wing membrane, slightly infuscated, but surroundings of veins 1-M, 1-CU1 and r of fore wing dark brown pigmented (fig. 827); ovipositor sheath dark brown, but apex narrowly yellowish.

Holotype in CNC, Ottawa: "Ramsey Cyn., 5000'(ft), 15 mi. S. Sierra Vista, Huachuca Mts., Ariz., Sternitzky, VIII.1968", "*Zemiotes* n. sp., W.R.M. Mason '72". Paratypes: (1♀ and 1♂); 1 ♂ (allotype, CNC), "Mex., Dgo., 24 mi. W. La Cuidad, 7000'(ft)"; 1 ♀ (RMNH), "Sn Cristobal, Chis., Mex., 27.VII.69, D. Kritsch".

Variation: Length of fore wing 8.9—11.4 mm; length of ovipositor sheath 0.19—0.24 times fore wing: length of vein 1-M of hind wing 0.8—0.9 times cu-a; length of 1st tergite 2.5—3.2 times its apical width; length of malar space 0.1 (♀) or 0.2 (♂) times its apical width.

Zele crassifemur (Muesebeck) comb. nov.
(figs. 808, 809, 834—842)

Muesebeck, 1939, Proc. ent. Soc. Wash. 41: 84 (as *Meteorus*).
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 63.
Mason, 1973, Proc. ent. Soc. Wash. 75: 214.

Holotype, ♀, length of body 10.3, of fore wing 9.1 mm.

Head. — Antennal segments 43, 3rd segment subequal to 4th segment, length of 3rd and 4th segments 3.0 and 3.1 times their width, respectively, length of both penultimate segments 1.7 and 1.8 times their width; length of maxillary palp 1.1 times height of head; dorsal length of eye 1.8 times temple; temple rounded posteriad, punctulate; dorsal aspect of head rather transverse (fig. 838); POL : ∅ ocellus : OOL = 11 : 6 : 7; frons rather flat, rugulose medially and punctate laterally; vertex rather flat, punctulate; face medially convex, densely punctate, rather wide (fig. 842); clypeus convex, punctate; length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; side of pronotum crenulate medially, rugulose ventrally and posteriorly; epicnemial area more or less rugose (fig. 834); precoxal suture densely and narrowly rugose-crenulate dorsally, widely and densely punctate medially and ventrally; metapleural flange large, narrowly lamelliform apically; metapleuron almost smooth dorsally, rugose-reticulate ventrally; notauli distinctly crenulate (fig. 808); mesoscutal lobes weakly punctulate; scutellum weakly convex, punctulate; surface of propodeum completely and rather coarsely reticulate, with a long medial carina; posterior part of propodeum not separated from antero-dorsal part of propodeum (fig. 834).

Wings. — Fore wing: r : 3-SR : SR1 = 11 : 21 : 91; cu-a postfurcal in right wing (fig. 836), but subinterstitial in left wing; 1-CU1 : 2-CU1 of right wing = 2 : 45; 2-

SR : 3-SR : r-m = 28 : 21 : 21; vein 2-R1 well developed, longer than r. Hind wing: r shortly developed posteriorly (fig. 836); length of 1-M 0.4 times cu-a.

Legs. — Hind coxa punctulate; length of femur, tibia and basitarsus of hind leg 4.2, 11.5, and 7.4 times their width, respectively.

Metasoma. — Length of 1st tergite 2.3 times its apical width, its surface largely smooth, apical third superficially, longitudinally striate (fig. 839); dorsal carinae of 1st tergite absent; laterope and dorsope deep and large (fig. 834, 839); 2nd tergite smooth and mainly bare; length of ovipositor sheath 0.28 times fore wing.

Colour. — Brownish-yellow; ovipositor sheath (except apex) dark brown; apical half of antenna, hind tibia dorso-apically, somewhat infuscated; all tarsi whitish; base of hind tibia and tegulae, whitish-yellow; pterostigma yellowish.

Holotype in USNM, Washington: "Wellington Kans(as)", "E. G. Kelly Collector", "Experiment 151539", "Type 53036 U.S.N.M.", "*Meteorus crassifemur* Mues., Type, Det. Muesebeck". Two paratypes were examined: 1 ♀ from Texas and 1 ♀ from Brookings, S. D., both in USNM. Additional specimens examined: (4 ♀) from Illinois (Principia College, Elsah, Jersey Co.), North Carolina (Highlands), South Dakota (Brookings, light trap), and Texas (Lost Pines Pk., Bastrop) (CNC, USNM, UZM).

Variation: Antennal segments 43—44; length of fore wing 8.8—10.1 times fore wing: length of ovipositor sheath 0.25—0.29 times fore wing; length of hind femur 3.8—4.4 times its width; 1st tergite as well as length of vein 1-M of hind wing, as in holotype.

Zele gracilis spec. nov.
(figs. 810, 843—852)

Holotype, ♀, length of body 10.6, of fore wing 9.7 mm.

Head. — Antennal segments 49, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 4.4 and 4.2 times their width, respectively, length of both penultimate segments 2.5 and 3.0 times their width; length of maxillary palp 1.5 times height of head; dorsal length of eye 2.8 times temple; temple directly narrowed posteriad (fig. 850); POL : ∅ ocellus : OOL = 13 : 11 : 4; frons mainly smooth, concave behind antennal sockets; vertex punctulate, rather flat; face rather flat, punctulate; clypeus convex, punctulate; length of malar space 0.4 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.6 times its height; side of pronotum largely coarsely and densely reticulate-punctate, medially crenulate and dorsally punctulate (fig. 843); epicnemial area coarsely punctate; precoxal suture reticulate dorsally, densely ventrally (fig. 843); rest of mesopleuron more or less punctate; metapleural flange large, lamelliform apically (fig. 843); metapleuron coarsely and finely reticulate; notauli rather shallow and narrowly crenulate (fig. 849); mesoscutal lobes densely punctulate; scutellum rather flat, punctulate; surface of propodeum densely and coarsely rugose-reticulate, only anteriorly narrowly almost smooth, medial carina only anteriorly present; posterior part of propodeum not separated from antero-dorsal part (fig. 843).

Wings. — Fore wing: r : 3-SR : SR1 = 8 : 7 : 57; cu-a postfurcal; 1-CU1 : 2-CU1 = 1 : 22; 2-SR : 3-SR : r-m = 15 : 7 : 10; 2-R1 absent. Hind wing: r weakly developed; length of 1-M 0.8 times cu-a.

Legs. — Hind coxa densely and finely punctate; length of femur, tibia and basitarsus of hind leg 7.6, 14.4, and 13.4 times their width, respectively.

Metasoma. — Length of metasoma 4.1 times its apical width, its laterobasal half smooth (fig. 843) and its surface smooth in front of spiracles, convergently striate behind spiracles (fig. 852); dorsal carinae of 1st tergite absent; laterope and dorsope deep and large (fig. 843, 852); 2nd tergite densely setose, shiny and weakly coriaceous-punctulate (fig. 852); length of ovipositor sheath 0.37 times fore wing.

Colour. — Yellowish-brown; stemmaticum, head medio-posteriorly, mesosoma, basal half of hind coxa, dark brown; apex of antenna infuscated; wing membrane light brownish; pterostigma yellowish; palpi, lower half of temples, mandibles, face, fore leg, tegulae, hind tarsus (except base and apex) and 1st tergite in front of spiracles, more or less yellowish-white; pronotum anteriorly and posteriorly, and propodeum ventrally, narrowly brownish.

Holotype in CNC, Ottawa: "Nepal, Ktmd., Pulchauki, 7300'(ft), 7—16.VIII. 1967, Mal. Tr., Can. Exp.".

Zele albiditarsus Curtis
(figs. 853—876)

Curtis, 1832, Br. Ent. 9: 415—4, figs.
Curtis, 1832, Br. Ent. 9: 415—3, fig. (*Zele testaceator*). **Syn. nov.**
Nees, 1834, Hym. Ichn. affin. Mon. 1: 34 (*Perilitus albitarsus*).
Haliday, 1835, Ent. Mag. 3: 24 (*Meteorus albitarsis*).
Wesmael, 1835, Nouv. Mém. Acad. Brux. 9: 22 (*Perilitus dispar*).
Wesmael, 1835, id. 9: 26 (*Perilitus deceptor*). **Syn. nov.**
Curtis, 1837, Guide Br. Insects: 118 (*Meteorus calcitrator*).
Cresson, 1872, Can. Ent. 4: 81 (*Perilitus pallitarsis*). **Syn. nov.**
Thomson, 1895, Opusc. ent. 20: 2149 (*Meteorus* (*Zemiotes*) *rufulus*). **Syn. nov.**
Muesebeck, 1923, Proc. U. S. natn. Mus. 63: 13 (*Meteorus maximus*). **Syn. nov.**
Muesebeck, 1923, id. 63: 14 (*Meteorus reticulatus*). **Syn. nov.**
Wagner, 1928, Verh. Ver. naturw. Unterh. Hamb. 20: 8.
Fahringer, 1930, Ark. Zool. 21A: 8 (*Meteorus romani*). **Syn. nov.**
Fischer, 1957, Opusc. zool. 3: 3 (*Meteorus* (*Zemiotes*) *separandus*). **Syn. nov.**
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 51—89.
Shenefelt, 1970, id. 5(2): 226.
Čapek, 1970, Can. Ent. 102(7): 848.
Fischer, 1970, Wiss. Arbeiten Bgld. 44: 258, 275—277, fig. 6.
Tobias, 1971, Tr. Vsesoyuzn. ent. Obshch. 54: 222—224.
Čapek, 1972, Ent. Problémy 10: 133, 138.
Mason, 1973, Proc. ent. Soc. Wash. 75: 214.
Papp, 1973, Acta Mus. Mac. Sc. nat. 14: 3.
Jakimavičius, 1974, Tr. AN Lit. SSR B2(66): 97.
Gauld & Huddleston, 1976, Entomologist's Gaz. 27: 43, fig. 19.
Van Achterberg, 1976b, Tijdschr. Ent. 119: figs. 107, 111.
Tobias, 1976, Opr. Fauna SSSR 110: 113, figs. 33: 16.

Zele albiditarsus f. **deceptor** (Wesmael) comb. nov.
(figs. 853—864)

Lectotype, ♀, length of body 7.5, of fore wing 6.8 mm.

Head. — Antennal segments 34, but apical segments missing, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 3.6 and 3.2 times their width, respectively; length of maxillary palp 1.5 times height of head; dorsal length of eye 2.2 times temple; temple roundly narrowed posteriad (fig. 863); POL : ∅ ocellus : OOL = 10 : 6 : 2; frons smooth, weakly concave; vertex weakly convex, punctulate; face rather flat, indistinctly punctulate; clypeus strongly convex, weakly punctate (figs. 853, 862); length of malar space 0.3 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.5 times its height; side of pronotum punctate-reticulate ventrally and posteriorly, crenulate medially, and mainly smooth dorsally (fig. 853); epicnemial area rugose-reticulate dorsally, narrowly crenulate anteriorly; precoxal suture crenulate dorsally, coarsely punctate-reticulate ventrally (fig. 853); rest of mesopleuron punctulate; metapleural flange large, lamelliform apically; metapleuron reticulate; notauli distinctly crenulate (fig. 861); mesoscutal lobes punctulate; scutellum weakly convex and weakly punctulate; surface of propodeum remotely and coarsely reticulate, medial carina irregular, long (fig. 864); posterior surface of propodeum not separated from antero-dorsal part (fig. 853).

Wings. — Fore wing: r : 3-SR : SR1 = 5 : 11 : 42; cu-a straight, postfurcal; 1-CU1 : 2-CU1 = 2 : 21; 2-SR : 3-SR : r-m = 14 : 11 : 8; 2-R1 short (fig. 855). Hind wing: r mainly absent; length of 1-M 0.6 times cu-a.

Legs. — Hind coxa punctulate; length of femur, tibia and basitarsus of hind leg 7.1, 13.8 and 12.2 times their width, respectively.

Metasoma. — Length of 1st tergite 2.5 times its apical width, its surface smooth in front of spiracles, longitudinally striate behind spiracles, only medially almost smooth (fig. 864); dorsal carinae of 1st tergite absent, except for a short basal remnant; laterope and dorsope large and deep (figs. 853, 864); 2nd tergite mainly bare and smooth; length of ovipositor sheath 0.27 times fore wing.

Colour. — Brownish-yellow; antenna apically and ovipositor sheath (except its tip), somewhat darkened.

Lectotype in KBIN, Brussels: "Coll. Wesmael", "1774", "*Perilitus deceptor* mihi, ♂♀, dét. C. Wesmael", "Type". Lectotype here selected, and labelled accordingly. There are two ♀ paralectotypes, both heavily damaged and two, rather dark ♂ paralectotypes.

The holotype of *Meteorus reticulatus* Muesebeck, 1923 (♀, USNM, "Mt. Wash'n", "58", "collection Ashmead", "*Meteorus areolatus* Ash., ♀, type (MS-name), "Type No. 24967 U.S.N.M.", "*Meteorus reticulatus* Mues., Type") is a typical *deceptor*.

The holotype of *Meteorus separandus* Fischer, 1957 (♂, ZSB, "Holotypus", "8/440", "Staatssamml. München, München, Pusing, 11.6.1884, leg. J. Kriechbaumer", "*Meteorus separandus* n. sp. det. Fischer, Holotype") is only a melanistic

specimen of *albiditarsus*, of which the males are usually darker than the females.

Additional specimens examined: 180 ♀ and 93 ♂. From the Nearctic region: Alaska (Gulkana Gla., from snowfield (!)), Yukon Territory (Dawson, 1100 ft), British Columbia (Andalis Cr.; Hazelton; St. Croix; 15 mi. Beatton R.; Green R.; Lakevale, Kettlevalley; Lac le Jeune; Duck Range; Lower Nicola; Kimberley; Mt. Thornhill, nr. Terrace, 700 ft; Green Inlet; Knouff L.; Jesmand; Field; mi. 103 Cariboe Hwy.; Bostock Cv.), Quebec (Parke Reserve, Kam. Co.; Covey Hill; Sept Iles; Lac Mondor, Ste Flore; Sinclair Mills; Mara; Spiller Chl.), Ontario (Gogama; Nakina; Glomcoe; Hearst; Port Arthur; Kapuskasang; Black Sturgeon Lake), Alberta (Miette Springs Rd.; Poeahontas; Hargwen; Slave L.; Jasper), Saskatchewan (Prince Albert), New Brunswick (Restigouche Co.), Nova Scotia (Truemanville, Cumberland Co.), Wisconsin (Illakee, Vitsap Co.; Trout L.), South Dakota (2 mi. S. Sylvan L., Black Hills), Virginia (Mt. Washington), Oregon (Milton Freewater; Saddleback Mt., Lincoln Co.), Utah (Aspen Grove Camp, Mt. Timpanogos, Utah Co., 6800 ft), Idaho (Cronwall), New Hampshire (Hanover; Durham), and California (Cisco).

From the Palaearctic region: Finland (Tvärmine; Pernå; Norv. b. Skiervö; Lemland; Carelia or., Soutjärva), Sweden (Lapland; Höör, Skåne), Denmark (Ems; Sonderburg; Allerup; Sondbg; Dÿrhavn), West Germany (Fuss Hohen Acht, Eiffel; Jungfernhardt, Siebengeb.; Vorgebirge, Kottenforst; Fuss Lohrberg im Siebengeb.; Mainz; Ennert nr. Beuel; Tiergarten N. Blankenheim, Eifel; München, Pusing; Bramwald, Nd. Sachsen; Hedemünden; Wiesen, Spessart; Tremalzo, Voralpen, 1300 m; Hochstadt, Obb.; Bergen, 600 m, Bayr. Alpen; Grainbach, Obbay., 700 m; Reither Alm, 1100 m; Heidelberg; Ziegenhagen, Hessen; Eberschütz, id.), England (Epping Forest, Essex; Spratton, Northants.; Isle of Rhum, Kimloch; Oxon; Goring Heath; Sherwood, NM), Scotland (Aviemore; Invern., Tollochmoor; NS., Inchnadamph), Ireland (Killykeen), Netherlands (Oostkapelle; Putten (G.); Woold; Overveen; Bentveld; Lienden; Velzen; Wijster; Rijs (Fr.); Meinweg, nr. Herkenbosch; Nunspeet; Meijendel, dunes; Rockanje, Stekelhoekduin; Oostvoorne; Drijber; Haamstede; Wapenveld; Rijsbergen; Schayk; Waarder; Wageningen, Wageningse berg; Assel; Crailo; Naardermeer; Muiderberg; Otterlo; Venlo; Heerde (G.); Asperen; Loenen; Melissant), Belgium (Lk., Stavelot), France (La Bégude de Mazenc, Drôme; Saumane de Vaucluse), Switzerland (Wallis, Unterbäch, 1500 m), Austria (Hofgastein, Schossalm, 2000—2150 m; Semmeringgeb., Reichenau dist., Salzburg, Judenbergalm; Rainberg, Steinbruch, Salzburg; Söllheim, Autobahn nr. Salzburg; Innsbruck; Gneisermoor, Salzburg; Aschbach, 1400 m, Tirol), Czechoslovakia (Prachatitz, Bohemia); USSR (Sveneioniy, Lit. SSR; Kazachstan, Karagandinsk), Bulgaria (Rodopi, Velinograd), and Italy (Campi, Riva s. Garda, 800 m; id., 220 m) (CAS, ZMH, UZM, RMNH, ITZ, CNC, ZC, ZSB, HC, ZIL, IZP).

Variation: Length of fore wing 4.5—8.3 mm; antennal segments 32—43; vein cu-a of fore wing postfurcal or seldom interstitial; length of hind femur 5.1—6.4 times its width; length of 1st tergite 2.1—2.5 times its apical width; length of ovipositor sheath 0.26—0.32 times fore wing; length of vein 1-M of hind wing 0.5—0.8 times

vein cu-a; hind tarsus yellowish, brownish, or infuscated. Silken cocoon rather tough, dense and whitish or brownish.

Known hosts of examined specimens belong to the Geometridae (Lepidoptera): *Semiothisa sexmaculata* (Packard), *S. granitata* (Guenée), *S. unipunctaria perplexa* (McDunnough), *Rheumaptera hastata* (L.), *Enypia moilietti* (?), *Eupithecia pseudotsugata* MacK., *Nyctobia nigroangulata* Strecker, and *Hydriomena furcata* (Thunberg); to the Noctuidae (*Anarta myrtilli* (L.)), Saturniidae (*Antheraea polyphemus* Cramer on *Quercus macrocarpa*), and Tortricidae (*Acleris variana* (Fernald)). The latter host especially needs to be confirmed.

Zele albiditarsus f. **pallitarsis** (Cresson) comb. nov.
(figs. 865—876)

Holotype, ♂, length of body 6.6, of fore wing 5.6 mm.

Head. — Antennal segments 43; length of maxillary palp 1.4 times height of head; dorsal length of eye 1.3 times temple; temple roundly narrowed posteriad (fig. 866); POL : ∅ ocellus : OOL = 9 : 5 : 7; length of malar space 0.7 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.4 times its height; sculpture of mesosoma as in forma *deceptor* (fig. 865).

Wings. — Fore wing: r : 3-SR : SR1 = 4 : 10 : 43; 1-CU1 : 2-CU1 = 1 : 22; 2-SR : 3-SR : r-m = 14 : 10 : 9. Hind wing: short remnant of r present; length of 1-M 0.95 times cu-a.

Legs. — Length of femur, tibia and basitarsus of hind leg 5.9, 12.2, and 8.8 times their width, respectively.

Metasoma. — Length of 1st tergite 2.4 times its apical width, its surface smooth in front of spiracles, superficially punctate-rugose posteriorly (fig. 876); 2nd tergite mainly bare and smooth.

Colour. — Brownish-yellow; pterostigma brown; hind tibia infuscated apically; palpi, two basal segments of hind tarsus, whitish, rest of hind tarsus mainly yellowish.

Holotype in ANSP, Philadelphia: "N.J.", "Type No. 1767", "*Perilitus pallitarsis* Cress.". Essentially as *deceptor*, but vein 1-M longer and hind tarsus more whitish basally. Additional specimens examined: 24 ♀ and 21 ♂. From the Nearctic region: Yukon Territory (Dawson), Newfoundland (South Branch), Michigan (Ann Arbor; Lake Odessa), Ontario (Rondeau Park; St. Pelee; Florence; Aylmer West), Quebec (Hull), Alberta (14 km N. Sundre), New York (Orient, L.I.; Ithaca), Oregon (Bedford; Hinckley), Virginia (Rosslyn), Pennsylvania (Germantown; Grantville, Dauphin Co.), Maryland (Cabin John), New Jersey (Moorestown), Maine (Bar Harbor), and Mexico (Dgo., 30 mi. W. La Cuidad, 6500 ft; Sin., 4.5 mi. W. El Palmito, 6500 ft), and from the Palaearctic region: Denmark (Sondbg.) (CNC, UZM, USNM, RMNH). One specimen was reared from *Semiothisa sexmaculata* (Packard) (Geometridae).

Variation: Length of fore wing 4.6—6.2 mm; antennal segments 39—43; length of vein 1-M of hind wing 0.9—1.3 times vein cu-a of hind wing: length of 1st tergite

2.2—2.4 times its apical width; length of ovipositor sheath 0.24—0.32 times fore wing; length of hind femur 5.9—6.6 times its width; hind tibia, pterostigma and antenna of male usually infuscated or dark brown.

Zele albiditarsus f. **albiditarsus** Curtis comb. nov.

Holotype, ♂ (from Regent's Park, England (NMV)) not examined, but the original description, especially the remark on the coloration and the figures given by Curtis are clear enough to enable a correct identification of the species. The lectotype of *Zele testaceator* Curtis on examination proved to be the ♀ of *albiditarsus*; the following redescription is based on this lectotype of *testaceator*.

Length of body 8.8, of fore wing 8.9 mm.

Head. — Antennal segments 46, 3rd segment 1.1 times 4th segment, length of 3rd and 4th segments 3.4 and 3.0 times their width, respectively, length of both penultimate segments 1.8 and 2.0 times their width; length of maxillary palp subequal to height of head; dorsal length of eye 1.7 times temple; temple roundly narrowed posteriad; POL : ∅ ocellus : OOL = 13 : 10 : 7; frons concave, somewhat rugose near antennal sockets; vertex smooth and rather convex; length of malar space 0.3 times basal width of mandible.

Mesosoma. — Length of mesosoma 1.2 times its height; sculpture of mesosoma as in *deceptor*.

Wings. — Fore wing: r : 3-SR : SR1 = 10 : 26 : 124; cu-a interstitial; 2-SR : 3-SR : r-m = 31 : 26 : 21; 2-R1 short. Hind wing: r present; 1-M much shorter than cu-a.

Legs. — Length of femur, tibia and basitarsus of hind leg 6.1, 11.0, and 9.3 times their width, respectively.

Metasoma. — Length of 1st tergite 2.0 times its apical width, anterior half very finely rugulose, basal half almost smooth; 2nd tergite mainly bare and smooth; length of ovipositor sheath 0.25 times fore wing.

Colour. — Yellowish-brown; surroundings of ocelli and ovipositor sheath (except tip), dark brown; pterostigma yellowish; hind tarsus yellowish-white.

Lectotype in NMV, Melbourne: "Coomb, 25 July" (old handwritten label, refers to the type-locality Coomb Wood, England), "Type", "3.*testaceator* Type, ♀, = 3.*albiditarsus* ♂, G. Nixon, det. 1948". This specimen is selected as lectotype, because Curtis mentioned a second locality (viz., Regent's Park), and is labelled accordingly.

The lectotype of *Perilitus dispar* Wesmael, 1835, is here selected, and labelled accordingly; it is the only well-preserved female of the type-series of *dispar*: "Coll. Wesmael", "1742", "*Perilitus dispar* mihi ♂♀, dét. C. Wesmael", "Type". Four additional paralectotypes examined: 1 ♀ and 3♂ with the same labels. Despite the small differences given by Wesmael (which are mainly due to the less accurate description of Nees) *dispar* is a junior synonym of *Perilitus albitarsus* Nees, 1834, while both are junior synonyms of *albiditarsus*.

The holotype of *Meteorus maximus* Muesebeck, 1923 (♀, USNM, "Coll", "Am. Ent. Soc. Collection", "*Zemiotes coloradensis* Ashm., ♀" (MS-name), "Type No.

24966 U.S.N.M.", "*Meteorus maximus* Mues., Type") is a typical *albiditarsus*.

The lectotype of *Meteorus rufulus* Thomson, 1895 (♂, ZIL, "p", "1977, 37") is herewith selected, and labelled accordingly. Length of fore wing 7.5 mm; hind tarsus largely whitish, basally and apically yellowish; vein cu-a of fore wing interstitial; length of 1st tergite 2.1 times its apical width, and length of hind femur 6.7 times its width. There is one paralectotype (♂, ZIL, "*rufulus*", "1977, 36"), which is also not essentially different from *albiditarsus*.

The lectotype of *Meteorus romani* Fahringer, 1930 (♀, NR, "Kamtschatka, Malaise", "1231", "Type", "*Meteorus Romani* n. sp. prope *tabidus*" (in Fahringer's handwriting), "Holotype of *Meteorus* (*Zemiotes*) *romani* Fahr., det. T. Huddleston, 1976", "403, 77". "Riksmuseum Stockholm") is here selected, and labelled accordingly. Body mainly dark brown, but eye margins mainly, antennal sockets, clypeus, mandibles, and metasoma ventro-apically, brownish; palpi and apex of ovipositor sheath, whitish-yellow; legs largely yellowish, coxae dark brown, hind femur and tibia apically brownish tinged, and hind tarsus mainly whitish; vein r of hind wing absent; length of fore wing 6.7 mm; dorsal length of eye 2.4 times temple; length of vein 1-M of hind wing 0.3 times cu-a; length of ovipositor sheath 0.21 times fore wing. A melanistic specimen of *albiditarsus*, comparable with the type of *Meteorus separandus* Fischer, but hind tarsus mainly whitish. There is one paralectotype (♂, NR, topotypic): length of fore wing 5.4 mm; hind tarsus whitish-yellow; hind femur more dark brown than in female; dorsal length of eye 1.3 times temple; length of vein 1-M of hind wing 0.85 times vein cu-a.

Additional specimens examined: 292 ♀ and 216 ♂. From the Nearctic region: Alaska (Mile, Elliott Hwy), Yukon Territory (Dawson, 1000 ft), Manitoba (Lac du Bonnet), Ontario (Pt. Pelee; Rondeau Park; Florence), New Brunswick (St. Andrew), Newfoundland (South Branch), Michigan (Gull Lake Bio. Sta., Kalamazoo Co.), New York (Orient, L.I.; Green Co., 2500 ft; Greenport; Cranberry L.), New Jersey (Ocean View, Cape May Co.), Maine (SW. Harbor), Maryland (Patuxent Ref., Cabin John), Virginia (Mountain L.), North Carolina (Highlands; Tryon), South Carolina (Clemson), Georgia (Raban Bald; Athens), Pennsylvania (Roxborough), Oregon (Saddleback Mt., Lincoln Co.), California (Camino), and Mexico (Dgo., 9000 ft, 10 mi. W. El Salto) (CNC, MSU, RMNH, UCA, USNM).

From the Palaearctic region: Finland (Taivassalo; Eckerö; Jomaba), Sweden (Sk., Dalby), Denmark (Kirksby; Adserbo; Roden-Skov, Lolland; Dyrehavn; Wittenberge; Hus, Westgylland; Kåge), West Germany (Dollendorfer Hardt im Siebengeb.; Kiel; Löwenberg, Siebengeb.; Mayschoss, mittl. Ahr, nr. Bonn; Hirschwaihar im Kottenforst; Katzenlochsbachtal, nr. Bonn; Lohrberg im Siebengeb.; Geisenheim; Adenau-Hohe, Acht, Eiffel; Steinbach-Talsperre, 7 km S. Euskirchen, Rhld; Röndorfer Tal; Mühltal, nr. München; Hochstatt, nr. Rosenheim; Mittenwald, Hasel-Lähne, ca. 1700—1900 m; Seierskopf, nr. Mittenwald, ca. 1000 m; Riedbergstharte, ca. 1500 m; Titisee, Schwarzwald; Spessart, nr. Lochmühle; Hedemünden; Obbayern, nr. Gauting), East Germany (Thüringen; Berlin), USSR (K. Merija, Nida; Varénosz, Merkini, Susviesa; Kazakhstan, Balkarija; Georgiansk, Absjaro-Imerinsk, 10 km Bachmaro),

England (Herts., Arkley), Netherlands (Putten (G.); Heerde (G.); Ulvenhout; Rijs (Fr.); Muiderberg; Melissant; Oostvoorne; Driebergen; Breda; Ameland, 1 km S. Ballum; id., Nesserbosch, 1 km NE. Nes; Zundert, De Krochten; Amsterdamse Duinwaterleiding, nr. Vogelenzang; Loenen (G.); Meinweg, nr. Herkenbosch; Mon (Z.L.); Vijlen; St. Pietersberg; Bergen; Bergerbosch; Molenven (nr. Oisterwijk?); Vaals; Den Haag; Delft; 's-Graveland; Baarle-Nassau; Tegelen, De Holtmühle; Noordwijkerhout, Nieuw Leeuwenhorst; Stein; Hilversum; Amerongen; Nagele; Woold; Eerde; Garderen; Epen; Oldenzaal; Haarlemmerhout; Bussum; Beetsterzwaag; Oegstgeest, Oud-Poelgeest; Soest; Waarder; Winterswijk; Schayk; Vessem; Oploo; Venlo; Crailo; Nunspeet; Weesp; Asperen; Naardermeer; Assel; Drijber; Botshol; Bredevoort; Overveen; Ede (G.); De Steeg; Winterswijk; Wijster; Weert; Drunen; Keperbosch (Z.L.); Bergen op Zoom; Meijendel, dunes; Castelre), Belgium (Lk., Stavelot; Hautes Fagnes, Mt. Rigi, 670 m; Virton, 230 m), Austria (Leitha Geb., Donnerskirchen; Tirol, Aschbach, 1400 m; Piesting; Wien; Judenbergalm, Salzburg; id., Sam-Moos; id., Wallersee; id., Kasern; Riedegg nr. Gallneukirchen), Switzerland (Wallis), Italy (Monte Lessini, Pr. Verona, S. Rocco, 300 m), France (Pyr. or., Perpignan), Poland (Wroclaw; Gdansk), Czechoslovakia (B. Štiavnica, Slov.), China (Beh Luh Din, 30 mi N. Chengtu, Szechuan; 30 mi. N. Tatsienlu, 12000 ft, Szechuan; Mt. Omei, 6000—7500 ft, Szechuan), Japan (Nagano, 400 m; Mt. Takao, 600 m, Tokyo; Kiyose, Tokyo; Nippara, Tokyo; Mt. Asama, Nagano), Nepal (Ktmd., Godavari, 6000 ft; nr. Ktmd., Gulubhanjyang, 7500—8500 ft, pastures; Ktmd., Pulchauki, 8000 ft; 11100 ft, 27°58′N, 85°00′E; 9900 ft, 28°00′N, 85°00′E), Birma (N.E. Birma, Kambaiti, 2000 m), and India (Kalatop, 2438 m, H. P.; Dalhousie, 2133 m, H. P.; Ahla, 2286 m, H. P.) (WHC, CNC, DZD, CVR, LH, RMNH, ITZ, ZMH, IZP, ZMB, UZM, USNM, BM, HC, ZI).

Variation: Length of fore wing 4.3—11.1 mm; antennal segments 37—50; length of vein 1-M of hind wing 0.3—0.8 times vein cu-a; length of hind femur 5.9—7.1 times its width; length of 1st tergite 1.6—2.8 times its apical width; length of ovipositor sheath 0.19—0.33 times fore wing; hind tarsus white or whitish-yellow, lighter coloured than middle of hind femur; vein r of hind wing more or less developed or completely absent; specimens from China have mesoscutum and mesopleuron punctate or punctulate, but vertex at most punctulate; male has apical 0.7 of hind tibia more or less infuscated; melanistic specimens of both sexes with dark brown pterostigma, infuscated legs and body or mainly blackish body occur rather frequently; vein cu-a of fore wing postfurcal or interstitial, exceptionally antefurcal; frons and 1st tergite sculptured or almost smooth; temples of male sometimes somewhat swollen; tough silken cocoon rather greyish or almost whitish.

Known hostst of examined specimens belong to the Geometridae (*Rheumaptera hastata* (L.), *Macaria notata* (L.)), and Noctuidae (*Hypena proboscidalis* (L.), *Zale* spec.).

Notes. There has been a great deal of confusion about the identity of *testaceator*, the type-species of the genus *Zele*. Up till now it has been confused with *Homolobus* (*Phylacter*) *annulicornis* (Nees). This is surprising because Curtis figured

the metasoma (fig. 415—416) with a clearly visible laterope, far removed from the base of the tergite. This may have been overlooked because Curtis did not state explicitly that the figure was made after *testaceator*. But he explicitly stated the presence of the vein r of the hind wing for both *albiditarsus* and *testaceator*. This vein is always absent in *Homolobus annulicornis* (Nees). In my opinion Curtis was misled by the rather pronounced sexual dimorphism in *albiditarsus*; actually he named the dark male *albiditarsus* and the yellowish female *testaceator*. Already Reinhard (in Ruthe, 1862: 2) indicated the possible synonymy of *testaceator* and *albitarsus* (Nees). Additionally Bengtsson (1918: 29—32) proved that *testaceator* has to be a synonym of *albiditarsus*, without the examination of the types. Curiously he was not followed by later authors; unfortunately Bengtsson made the wrong choice for the replacement name of *Zele* auct., viz., *Phylacter* Reinhard, 1863, instead of *Homolobus* Foerster, 1862.

The variability in size and colour is very large in *albiditarsus*. This has led a large number of entomologists to naming forms structurally not or only slightly different from the nominate form. Actually on the basis of colour two main groups may be formed. The first group with more or less whitish hind tarsus includes the synonyms: *testaceator, albitarsus, dispar, calcitrator, pallitarsis, rufulus, maximus,* and *romani* (the last mentioned being the melanistic form). The second has the hind tarsus more or less brownish or yellowish and includes the synonyms *deceptor, reticulatus,* and *separandus* (the last mentioned being the melanistic form of this group). The body colour varies from completely yellowish to completely blackish; the latter colour is very common in Nepal. The males are usually more infuscated than the females. I have tried hard to split up the complex, but all efforts were unsuccessful. For instance, the shape of the mesoscutum anteriorly, the length of the fore wing, the number of antennal segments and the index of the length of vein 1-M and vein cu-a of hind wing could not be reliably applied. Also the hosts of the various forms are, at least partly, the same; the difference in size of the hosts may account for the more than 100% difference in size between small and large specimens; smaller specimens have also smaller numbers of antennal segments. However, large difference in size is a not uncommon phenomenon among the parasitic Hymenoptera if various host-species are attacked which differ considerably in size.

EXCLUDED SPECIES

Austrozele assamensis (Cameron) comb. nov.

Cameron, 1910, Tijdschr. Ent. 53: 53 (as *Zele*).
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 153.

This species will be treated in a proposed revision of the Macrocentrinae.

Macrocentrus bengtssoni (Fahringer) comb. nov.

Fahringer, 1930, Ark. Zool. 21A(8): 5 (as *Phylacter*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 221.

The illustrated redescription will be published in a revision of the Macrocentrinae.

Meteorus brunnipes Ruthe

Ruthe, 1862, Berl. ent. Z. 6: 37.
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 55.
Fischer, 1970, Wiss. Arbeiten Bgld. 44: 275.

Fischer (1970: 275) has given *brunnipes* as a synonym of his *Meteorus deceptor* (Wesmael) without giving a justification of this synonymy. Fortunately Mr. T. Huddleston (London), who examined the lectotype, kindly informed me that this species is a true *Meteorus* and is not related to *deceptor*.

Meteorus dubius Ruthe

Ruthe, 1862, Berl. ent. Z. 6: 27, 28.
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 65.
Fischer, 1970, Wiss. Arbeiten Bgld. 44: 258.

Fischer (1970: 258), in his key to the *Meteorus* species, has given *dubius* as a synonym of *Zele caligatus* (Haliday), without any additional information. Again Mr. T. Huddleston was kind enough to inform me (after examination of the holotype) that *dubius* is not closely related to *caligatus*, and has to be referred to the genus *Meteorus* s.s.

Macrocentrus dubius (Wesmael) comb. nov.

Wesmael, 1835, Nouv. Mém. Acad. Brux. 9: 168 (as *Eubadizon*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 223.

Traditionally this species is considered to be related to *Charmon extensor* (L.), but examination of the holotype revealed its true nature. The illustrated redescription will be published in a revision of the Macrocentrinae.

Austrozele filicornis (Cameron) comb. nov.

Cameron, 1903, J. Straits Brch R. Asiat. Soc. 39: 128 (as *Zele*).
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 153.

See note under *Austrozele assamensis* (Cameron).

Eubazus longicaudus (Curtis) comb. nov.

Curtis, 1832, Br. Ent. 9: 415—10 (as *Zele longicauda*).
Shenefelt, 1970, Hym. Cat. 5(2): 224.

The examination of the holotype (NMV, Melbourne, which is not a lectotype as suggested by Shenefelt (1970: 224), because there is only one type-specimen in the

Curtis Collection and Curtis did not indicate that he had more than one specimen at hand) reveals that it belongs to the genus *Eubazus* Nees (Helconinae, Brachistini). However, there it becomes the senior homonym of *Eubazus longicaudis* (Ratzeburg, 1844). Therefore, I have to rename *E. longicaudis* (Ratzeburg, 1844). I call it *E. denticulatus* nom. nov., because of its small clypeal tooth.

Austrozele maculiceps (Cameron) comb. nov.

Cameron, 1912, Annls Soc. ent. Belg. 56: 372 (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 224.

Examination of the holotype (MAC, Tervuren) shows its relationship to the Macrocentrinae and particularly the genus *Austrozele* Roman. It will be dealt with in a revision of the Macrocentrinae.

Hymenochaonia melanonotus (Cameron) comb. nov.

Cameron, 1911, Timehri 1: 317 (as *Zele*).
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 225.

Examination of the holotype (BM, London) reveals that it belongs to the genus *Hymenochaonia* Dalla Torre and it will be dealt with in a revision of the subfamily Macrocentrinae.

Phylax nigricornis Walker

Walker, 1871, List Hym. Egypt. Arab.: 5.
Shenefelt, 1970, Hym. Cat. (nov. ed.) 5(2): 225.

Repeatedly Mr. T. Huddleston has searched, without success, for the type of *nigricornis*, while it should be in BM, London. Therefore the type is considered to be lost. Unfortunately the original description is too vague to be certain about its identity. The colour of the hind leg and antenna exclude it from the known Afrotropical and South Palaearctic species of *Homolobus*. If the note about the "thick" antenna is taken not too literally and if *Austrozele longipes* (Holmgren) occurs in Eritrea (where *Phylax nigricornis* was captured), it may well be this species which belongs to the Macrocentrinae. Until more is known about the fauna of Eritrea, the synonymy of *nigricornis* with *longipes* remains uncertain. The interpretation by Szépligeti of *nigricornis* is incorrect and refers to several species of the subgenus *Apatia* of the genus *Homolobus*.

Meteorus pallidus (Nees)

Nees, (1811)1812, Mag. Ges. nat. Fr. Berl. 5: 22 (as *Bracon*).
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 84.
Fischer, 1970, Wiss. Arbeiten Bgld. 44: 258.

Fischer (1970: 258) has added *M. pallidus* (Nees) to his *Zemiotes* section, in this paper treated as the genus *Zele* Curtis. But Nees stated explicitly that the 1st tergite of metasoma has the dorsope absent ("abdominus segmentum petiolare elongato-obconicum, punctulatum, nec sulcatum;...."), while all Palaearctic species of *Zele* have large and easily visible dorsope (or sulcate petiolar segment in the words of Nees). Another indication of the misinterpretation of *pallidus* is the sculpture of the 1st tergite; in *pallidus* sensu Fischer it is striate or rugose, while Nees calls it punctulate. Therefore I exclude *pallidus* from *Zele* Curtis and include it in *Meteorus* Haliday s.s. This leaves *pallidus* sensu Fischer without a name, but in my opinion it is only a rather robust form of *Zele albiditarsus* Curtis.

Zele somaliensis Szépligeti

Szépligeti, 1914, Mitt. zool. Mus. Berl. 7: 223.
Shenefelt, 1969, Hym. Cat. (nov. ed.) 4(1): 170.

Examination of the holotype (ZMB, Berlin) reveals its relationship to a new genus near *Austrozele* in the Macrocentrinae. The illustrated redescription will be published in a revision of the Macrocentrinae.

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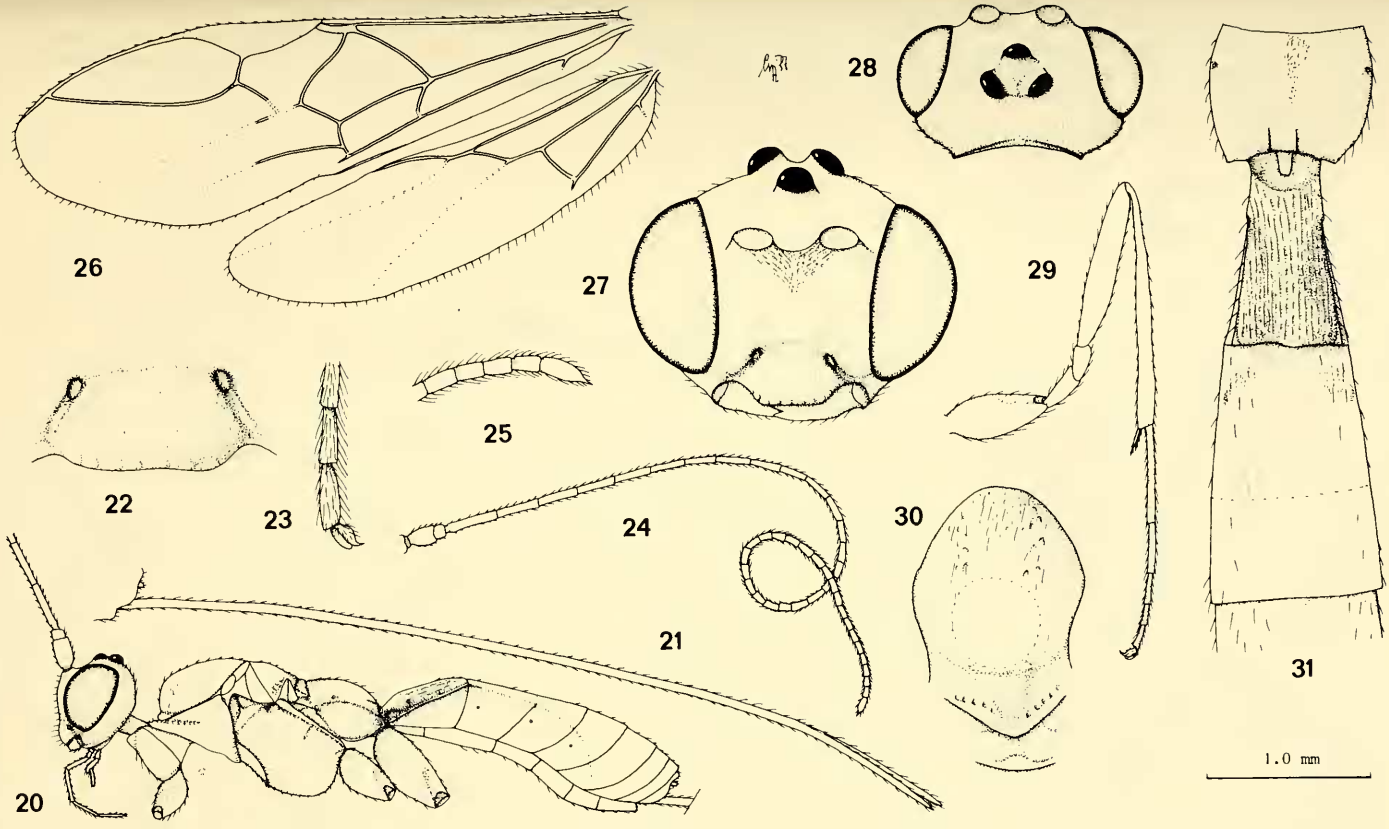
INDEX OF NAMES USED IN THE GENERA *Charmon, Exasticolus, Homolobus, Zele* AND THEIR SYNONYMS

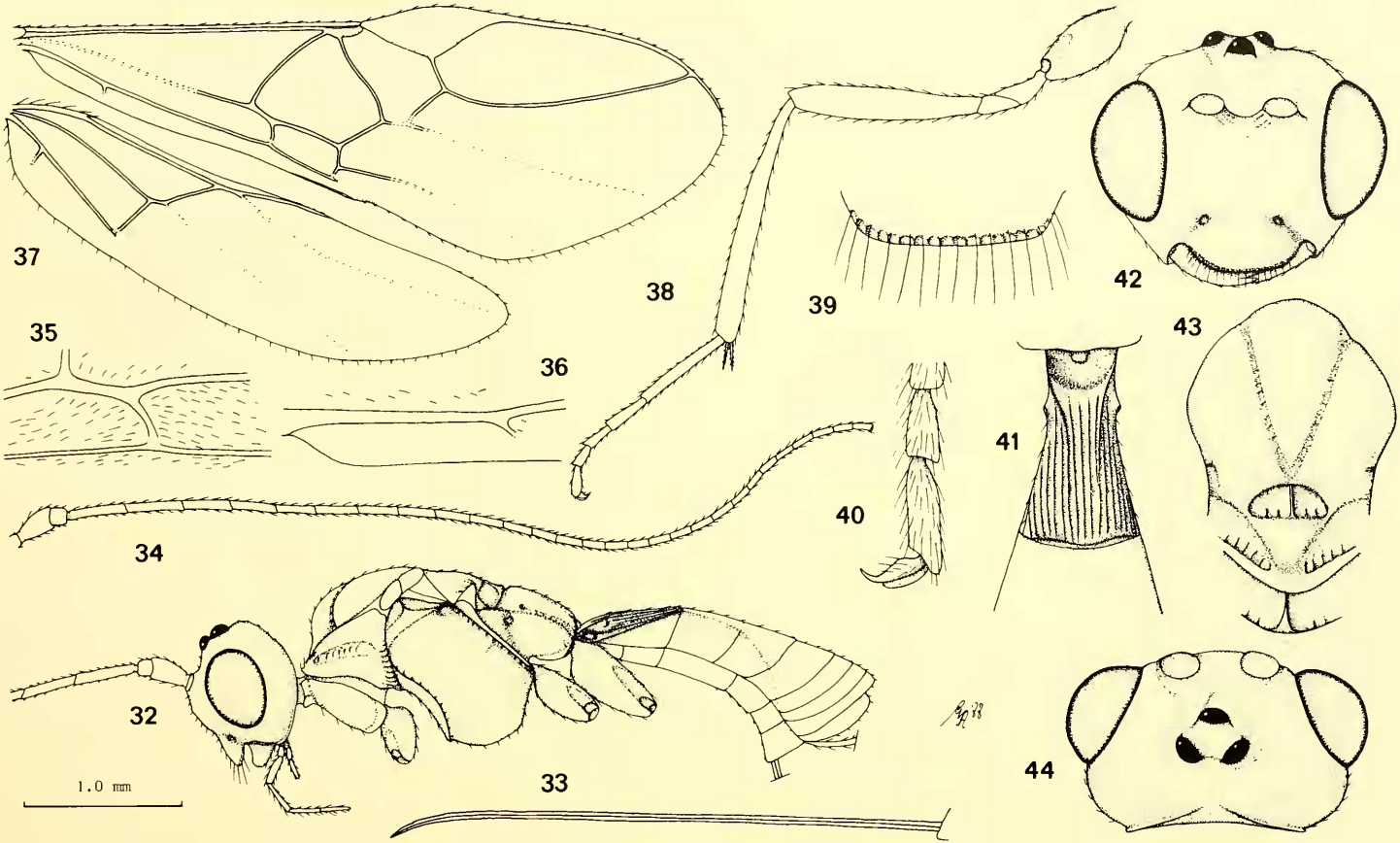
Name	Original genus	Correct genus	Type-locality (country) and location	Page
acares spec. nov.	*Homolobus*	*Homolobus*	Panama, RMNH	336
aestivalis Snellen van Vollenhoven, 1858	*Phylax*	*Homolobus*	Netherlands, lost	319
alaskensis Ashmead, 1902	*Dyscoletes*	*Zele*	Alaska, USNM	364
albiditarsus Curtis, 1832	*Zele*	*Zele*	England, NMV	376
albipalpis Granger, 1949	*Zele*	*Homolobus*	Malagasy, MNHN	283
albitarsis Haliday, 1835	*Meteorus*	*Zele*	Ireland, ?NMI	376
albitarsus Nees, 1834	*Perilitus*	*Zele*	?Germany, ?lost	376
alternipes spec. nov.	*Homolobus*	*Homolobus*	Kenya, MNHN	292
annulatus spec. nov.	*Homolobus*	*Homolobus*	India, DZD	342
annulicornis Nees, 1834	*Rogas*	*Homolobus*	Germany, lost (neotype: KBIN)	324
annulicrus Thomson, 1895	*Meteorus*	*Zele*	Sweden, ZIL	363
antefurcalis spec. nov.	*Homolobus*	*Homolobus*	New Mexico, CNC	345
armatus spec. nov.	*Homolobus*	*Homolobus*	New Mexico, CNC	343
assamensis Cameron, 1910	*Zele*	*Austrozele*	India, BM	383
atrator Curtis, 1832	*Zele*	*Meteorus*	England, NMV	
atriceps Riley in Riley & Howard, 1890 Nom. nud.				
australiensis Nixon, 1938	*Zele*	*Homolobus*	Australia, BM	282
basalis Provancher, 1888	*Zele*	*Hormius*	California, PC	
bengtssoni Fahringer, 1930	*Phylacter*	*Macrocentrus*	USSR, NR	383
bicolor spec. nov.	*Homolobus*	*Homolobus*	Mexico, CNC	333
bifurcatus spec. nov.	*Homolobes*	*Homolobus*	Burma, NR	322
bohemani Bengtsson, 1918	*Phylacter*	*Homolobus*	Sweden, NR	332
brevicauda Hellén, 1958	*Eubadizon*	*Charmon*	Finland, WHC	268
brevinervis spec. nov.	*Charmon*	*Charmon*	New Guinea, RMNH	267
brunnipes Ruthe, 1862	*Meteorus*	*Meteorus*	Germany, BM	384
calcarator Wesmael, 1835	*Phylax*	*Homolobus*	Belgium, KBIN	285
calcitrator Curtis, 1837	Nom. nov. for *albitarsis* Haliday, 1835			376
caligatus Haliday, 1835	*Meteorus*	*Zele*	?Ireland, NMI	364
carbonator Shestakov, 1940	*Zele*	*Homolobus*	USSR, NR	330
chlorophthalmus Spinola, 1808	*Bracon*	*Zele*	Italy, lost (neotype: RMNH)	370
chrysophthalmus Nees, 1812	*Bracon*	*Zele*	Germany, lost (neotype: KBIN)	370
cinctus Provancher, 1880	*Phylax*	*Bracon*	?, PC	
cingulatus Granger, 1949	*Zele*	*Homolobus*	Malagasy, MNHN	315
crassicalcaratus Viereck, 1905	*Zele*	*Homolobus*	Kansas, SEM	285
crassifemur Muesebeck, 1939	*Meteorus*	*Zele*	Kansas, USNM	374
crenulatus spec. nov.	*Homolobus*	*Homolobus*	North Borneo, BM	341
cruentatus Haliday, 1833	*Charmon*	*Charmon*	Ireland, NMI	268
curtis Provancher, 1886	*Phylax*	*Bracon*	Quebec, PC	
dauricus Shestakov, 1940	*Homolobus*	*Homolobus*	USSR, NR	320
deceptor Wesmael, 1835	*Perilitus*	*Zele*	Belgium, KBIN	376
discolor Wesmael, 1835	*Phylax*	*Homolobus*	Belgium, KBIN	319
dispar Wesmael, 1835	*Perilitus*	*Zele*	Belgium, KBIN	376
dubius Wesmael, 1835	*Eubadizon*	*Macrocentrus*	Belgium, KBIN	384
dubius Ruthe, 1862	*Meteorus*	*Meteorus*	Germany, BM	384
elagabalus Nixon, 1938	*Zele*	*Homolobus*	India, BM	280

ephippium Curtis, 1832	*Zele*	*Meteorus*	England, NMV	
ethiopicus spec. nov.	*Homolobus*	*Homolobus*	Tanzania, CNC	318
extensor Linnaeus, 1758	*Ichneumon*	*Charmon*	Sweden, BM	265
filicornis Cameron, 1903	*Zele*	*Austrozele*	Borneo, BM	384
flagitator Curtis, 1837	*Helcon*	*Homolobus*	Ireland, ?lost	334
(nom. nov. for *chlorophthalmus* Haliday, 1836, nec Spinola, 1808)				
fulvifrons Curtis, 1832	Nom. nudum			
fuscicornis Cameron, 1887	*Zele*	*Exasticolus*	Guatemala, BM	273
fuscitarsis Bengtsson, 1918	*Phylacter*	*Homolobus*	Sweden, ZIL	285
geminator Lyle, 1914	Nom. nov. for *chlorophthalmus* Haliday, 1836, nec Spinola, 1808			334
gracilis Provancher, 1880	*Eubadizon*	*Charmon*	?Quebec, PC	265
gracilis Provancher, 1886	*Phylax*	*Bracon*	Quebec, PC	
gracilis spec. nov.	*Zele*	*Zele*	Nepal, CNC	375
huddlestoni spec. nov.	*Homolobus*	*Homolobus*	Tanzania, BM	297
infumator Lyle, 1914	*Zele*	*Homolobus*	England, BM	305
inopina spec. nov.	*Charmontia*	*Charmontia*	Chile, CNC	263
inopinus spec. nov.	*Homolobus*	*Homolobus*	Malagasy, MNHN	316
japonica Watanabe, 1932	*Zele*	*Homolobus*	Japan, EI	305
lacteiceps spec. nov.	*Homolobus*	*Homolobus*	Uganda, TC	294
levis Muesebeck, 1923	*Meteorus*	*Zele*	New Mexico, CU	365
longicauda Curtis, 1832	*Zele*	*Eubazus*	England, NMV	384
luteus Cameron, 1911	*Cyclocormus*	*Charmon*	S. Africa, TMP	268
macropterus spec. nov.	*Homolobus*	*Homolobus*	Colombia, TC	347
maculatus spec. nov.	*Homolobus*	*Homolobus*	Uganda, CNC	291
maculiceps Cameron, 1912	*Zele*	*Austrozele*	Zaire, MAC	385
maximus Muesebeck, 1923	*Meteorus*	*Zele*	Colorado, USNM	376
melanonotus Cameron, 1911	*Zele*	*Hymenochaonia*	Guyana, BM	385
melleus Cresson, 1872	*Phylax*	*Homolobus*	Texas, ANSP	285
meridionalis spec. nov.	*Homolobus*	*Homolobus*	Marocco, CNC	326
mesoxiphius spec. nov.	*Homolobus*	*Homolobus*	Arizona, CNC	346
neesii Ruthe, 1862	*Meteorus*	*Zele*	Germany, BM	364
nepalensis spec. nov.	*Homolobus*	*Homolobus*	Nepal, CNC	340
niger Provancher, 1885	*Phylax*	*Doryctes*	British Columbia, PC	
nigriceps Riley & Howard, 1890	Nom. nudum			
nigriceps Enderlein, 1920	*Zele*	*Exasticolus*	Mexico, PAN	275
nigricollis Thomson, 1895	*Meteorus*	*Zele*	Sweden, ZIL	370
nigricornis Walker, 1871	*Phylax*	?(excluded)	Ethiopia, lost	385
nigritarsis spec. nov.	*Homolobus*	*Homolobus*	New Guinea, RMNH	310
nipponensis spec. nov.	*Homolobus*	*Homolobus*	Japan, EI	338
niveitarsis Cresson, 1872	*Perilitus*	*Zele*	Massachusetts, ANSP	368
nudator Thunberg, 1822	*Ichneumon*	*Zele*	Sweden, Uppsala	370
obscurus spec. nov.	*Homolobus*	*Homolobus*	Brazil, TC	344
occidentalis spec. nov.	*Homolobus*	*Homolobus*	Bolivia, TC	337
ochraceator Curtis, 1832	Nom. nudum			
ophioninus Vachal, 1907	*Meteorus*	*Homolobus*	New Caledonia, MNHN	298
pacificus Provancher, 1885	*Phylax*	*Doryctes*	British Columbia, PC	
pallidistigmus Cameron, 1911	*Macrocentrus*	*Homolobus*	S. Africa, TMP	303
pallidus Nees, 1812	*Bracon*	*Meteorus*	Germany, lost	385
pallitarsis Cresson, 1872	*Perilitus*	*Zele*	New Jersey, ANSP	376
palliventris Provancher, 1880	*Phylax*	*Bracon*	?, PC	
pectoralis Curtis, 1832	Nom. nudum			
pectoralis Nees, 1834	*Eubadizon*	*Charmon*	Germany, lost (neotype: KBIN)	268
peronatus Shestakov, 1940	*Meteorus*	*Zele*	USSR, NR	368

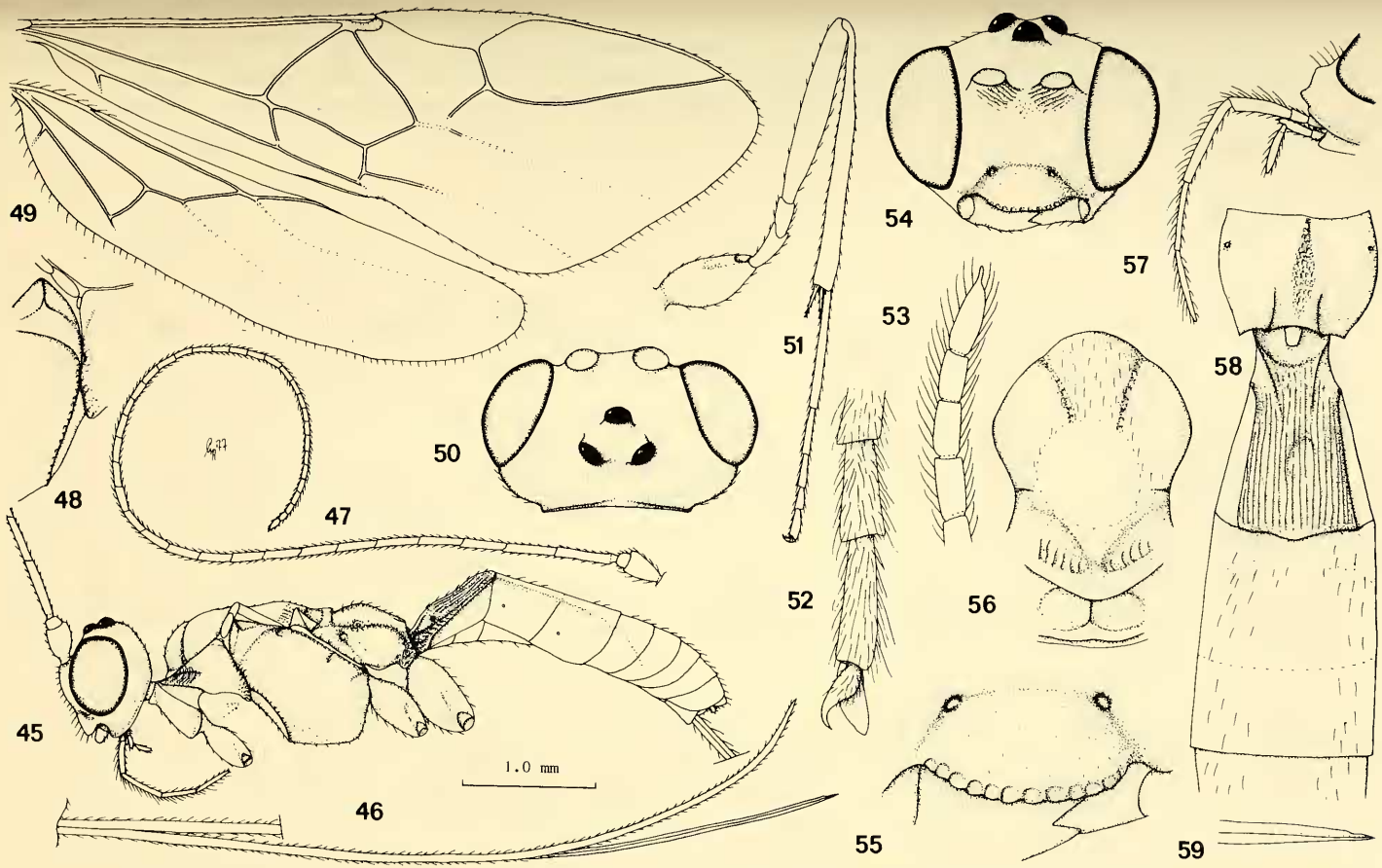
picinervis spec. nov.	*Zele*	*Zele*	Arizona, CNC	373
pleuralis Cresson, 1872	*Eubadizon*	*Charmon*	Missouri, ANSP	268
priapus Nixon, 1938	*Zele*	*Homolobus*	S. Africa, BM	293
pulchricornis Nixon, 1938	*Zele*	*Homolobus*	S. Africa, BM	296
punctatus spec. nov.	*Zele*	*Zele*	Argentine, IML	367
rectinervis spec. nov.	*Homolobus*	*Homolobus*	Chile, CNC	348
reticulatus Muesebeck, 1923	*Meteorus*	*Zele*	New Hampshire, USNM	376
romani Fahringer, 1930	*Meteorus*	*Zele*	USSR, NR	376
rosenbergi Viereck, 1911	*Zele*	*Exasticolus*	Peru, USNM	273
rufipes Provancher, 1880	*Phylax*	*Doryctes*	?, PC	
rufithorax Granger, 1949	*Zele*	*Homolobus*	Malagasy, MNHN	289
rufulus Thomson, 1895	*Meteorus*	*Zele*	Sweden, ZIL	376
rugosus spec. nov.	*Homolobus*	*Homolobus*	Malagasy, MNHN	314
separandus Fischer, 1957	*Meteorus*	*Zele*	Germany, ZSB	376
sibiricus Fahringer, 1930	*Meteorus*	*Zele*	USSR, NR	364
simillima Enderlein, 1920	*Apatia*	*Homolobus*	Costa Rica, PAN	285
simplex Watanabe, 1932	*Zele*	*Homolobus*	Japan, EI	313
somaliensis Szépligeti	*Zele*	Macrocentrinae	Somalia, ZMB	386
splendens Costa, 1884	*Meteorus*	*Zele*	Italy, Naples	370
terminalis Ashmead, 1889	*Zele*	*Macrocentrus*	Missouri, USNM	
testaceator Curtis, 1832	*Zele*	*Zele*	England, NMV	376
thoracicus Curtis, 1832	*Zele*	*Meteorus*	England, NMV	
truncatoides spec. nov.	*Homolobus*	*Homolobus*	Egypt, ZMB	300
truncator Say, 1828	*Bracon*	*Homolobus*	Indiana, lost (neotype: RMHN)	285
tuberculatus spec. nov.	*Exasticolus*	*Exasticolus*	Brazil, TC	272
tuberculifer spec. nov.	*Zele*	*Zele*	Panama, RMNH	368
undulatus spec. nov.	*Homolobus*	*Homolobus*	New Guinea, RMNH	309
unicolor Enderlein, 1920	*Zele*	*Homolobus*	Costa Rica, PAN	285
wesmaeli Bengtsson, 1918	*Phylacter*	*Homolobus*	Belgium, KBIN	305



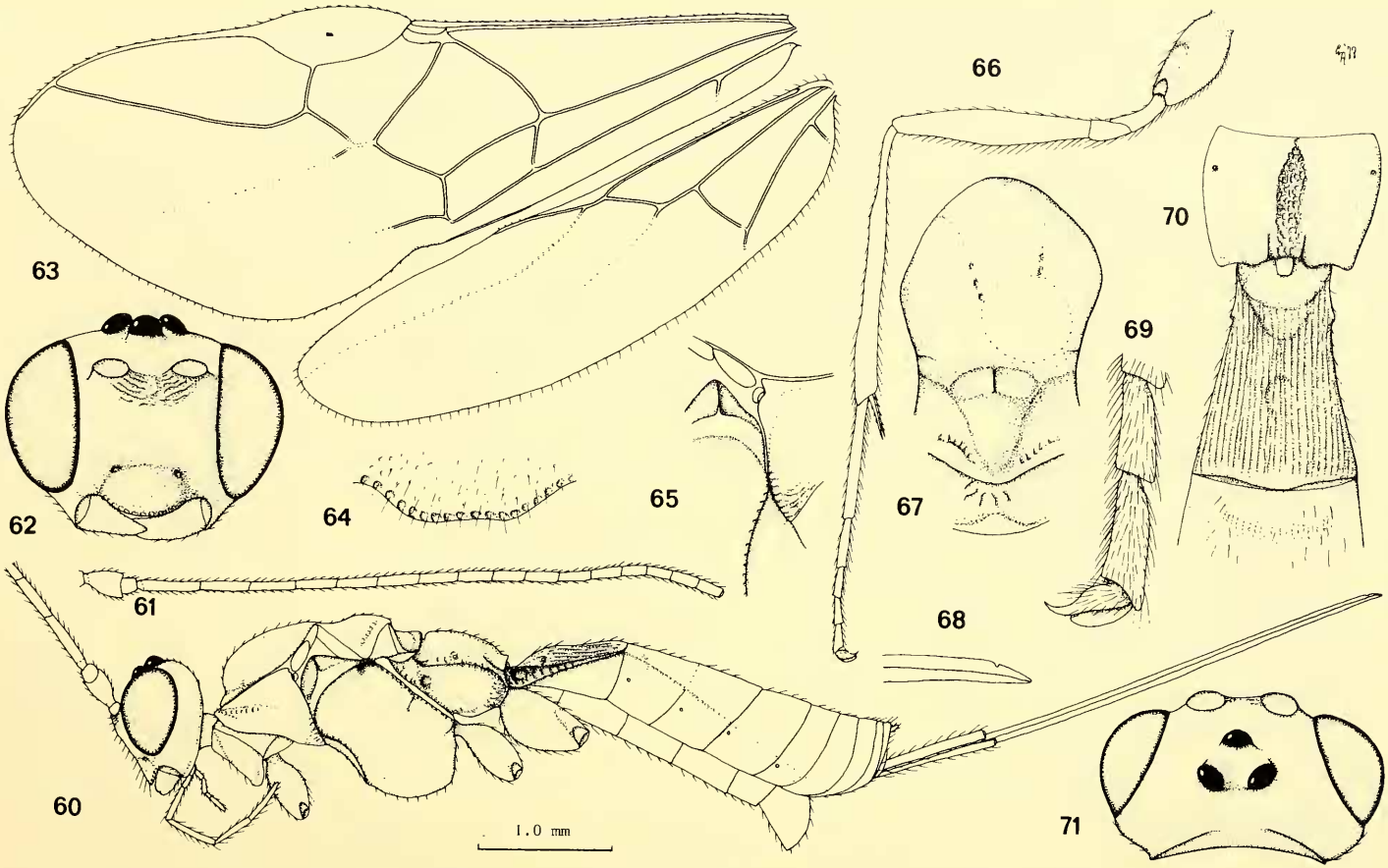
Figs. 20—31, *Charmon extensor* (Linnaeus), ♀, Canada, Mobert. 20, habitus, lateral aspect; 21, ovipositor; 22, detail of clypeus, frontal aspect; 23, inner hind claw; 24, antenna; 25, apex of antenna; 26, wings; 27, head, frontal aspect; 28, head, dorsal aspect; 29, hind leg; 30, mesonotum, dorsal aspect; 31, propodeum and 1st-3rd tergites, dorsal aspect. 20, 21, 26, 29: scale-line, 1 ×; 22: 5.0 ×; 23, 25, 27: 2.5 ×; 28, 30, 31: 1.7 ×



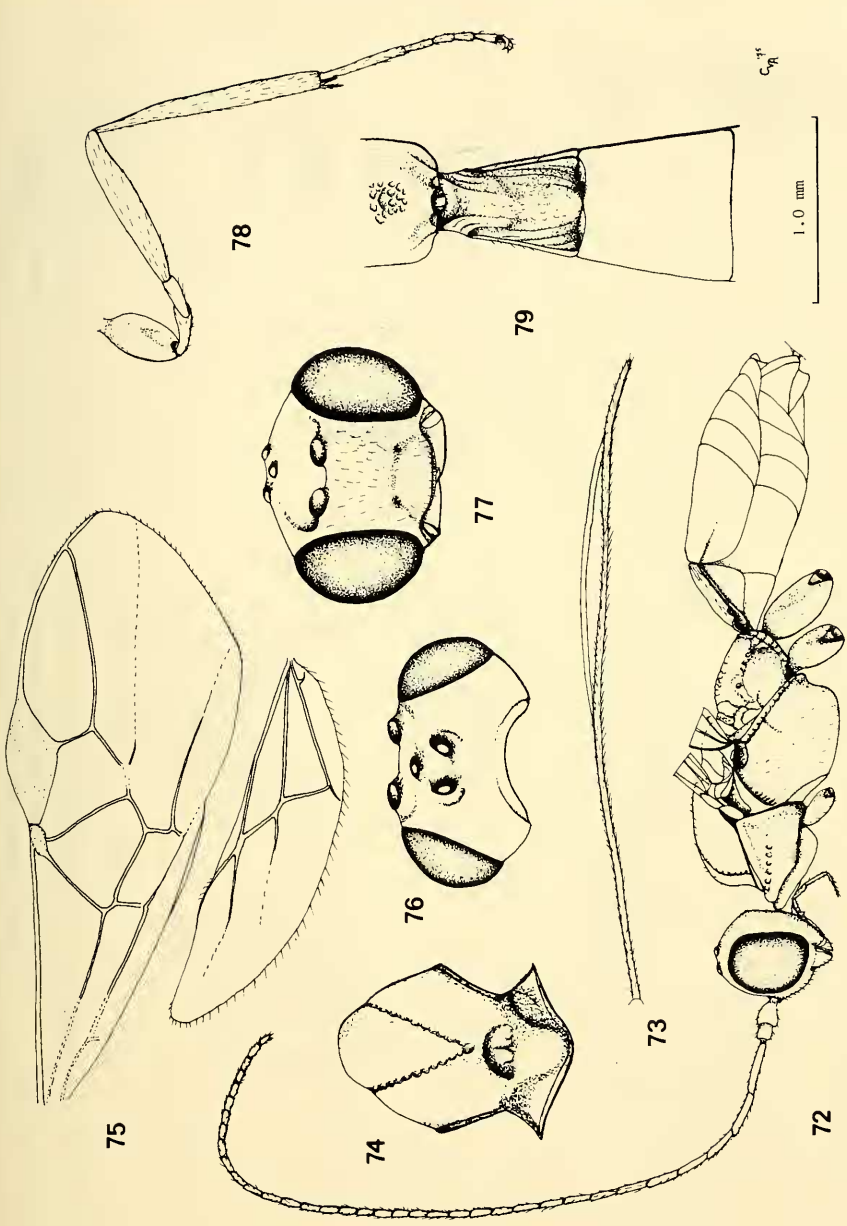
Figs. 32—44, *Charmon brevinervis* spec. nov., holotype. 32, habitus, lateral aspect; 33, ovipositor; 34, antenna; 35, detail of vein cu-a and 1—CU1 of fore wing; 36, detail of veins 1A + 2A of fore wing; 37, wings; 38, hind leg; 39, detail of apex of clypeus; 40, outer hind claw; 41, 1st tergite, dorsal aspect; 42, head, frontal aspect; 43, mesonotum, dorsal aspect; 44, head, dorsal aspect. 32—34, 37, 38: scale-line, 1 ×; 35, 36: 2.5 ×; 39, 40: 3.9 ×; 42—44: 1.8 ×



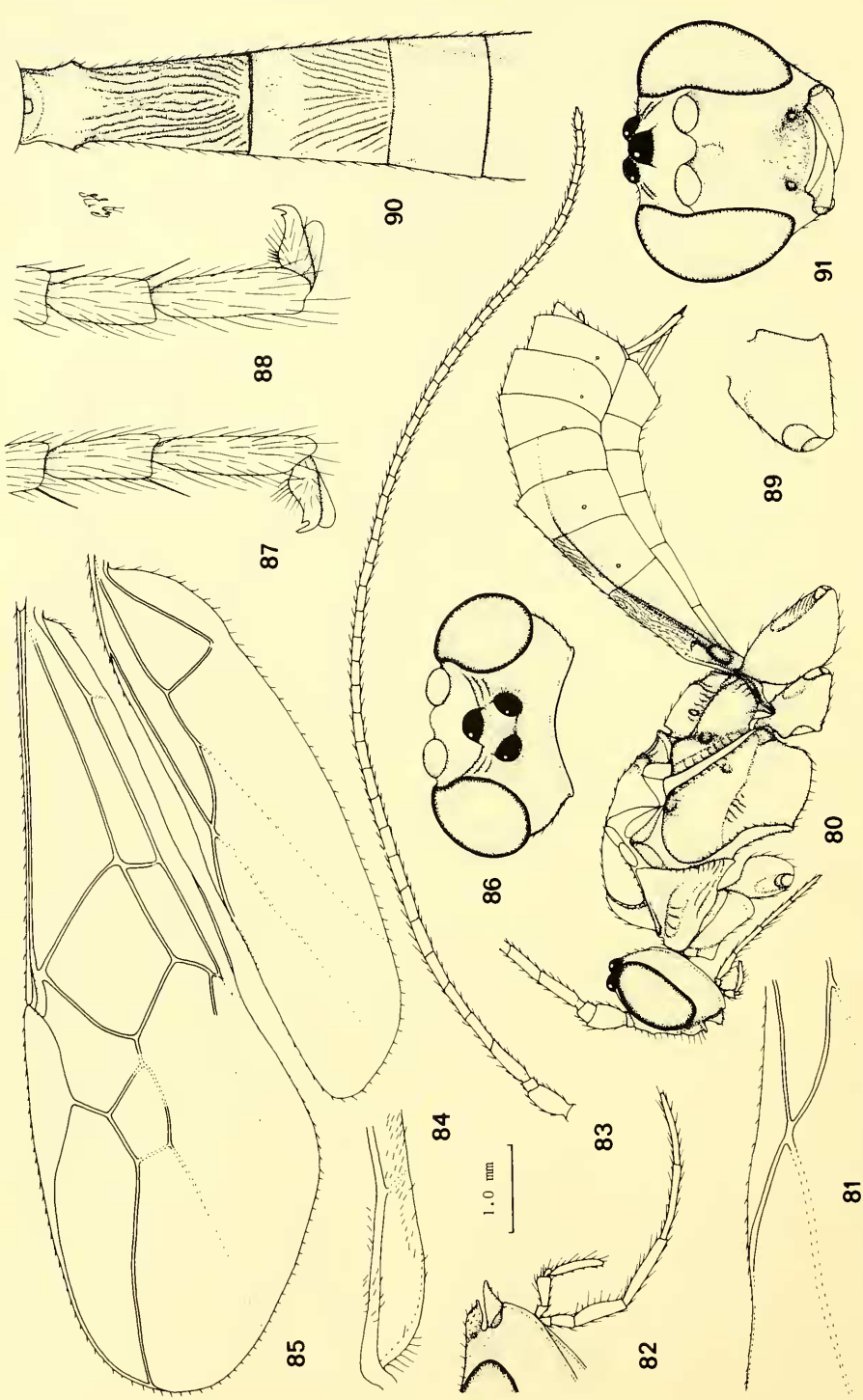
Figs. 45—59, *Charmon pectoralis* (Nees), neotype. 45, habitus, lateral aspect; 46, ovipositor; 47, antenna; 48, detail of anterior part of mesopleuron, lateral aspect; 49, wings; 50, head, dorsal aspect; 51, hind leg; 52, inner hind claw; 53, apex of antenna; 54, head, frontal aspect; 55, detail of clypeus; 56, mesonotum, dorsal aspect; 57, detail of palpi; 58, propodeum and 1st—3rd tergites, dorsal aspect; 59, apex of ovipositor. 45—47, 51: scale-line, 1 ×; 48, 50, 54, 56—58: 2.0 ×; 52, 53, 59: 5.0 ×



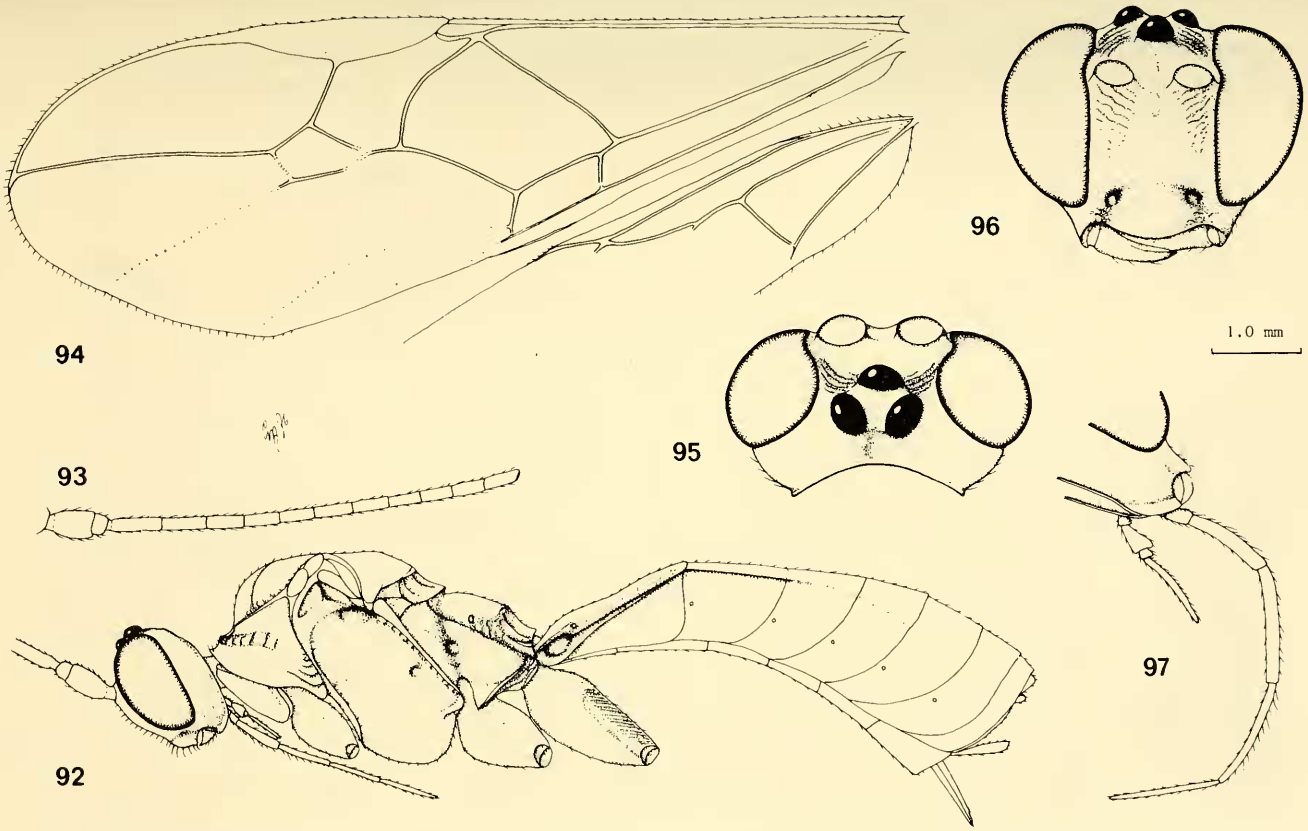
Figs. 60—71, *Charmon brevicaudus* (Hellén), holotype. 60, habitus, lateral aspect; 61, antenna; 62, head, frontal aspect; 63, wings; 64, apical margin of clypeus; 65, detail of anterior part of mesopleuron, lateral aspect; 66, hind leg; 67, mesonotum, dorsal aspect; 68, apex of ovipositor; 69, inner hind claw; 70, propodeum and 1st tergite, dorsal aspect; 71, head, dorsal aspect. 60, 61, 63, 66: scale-line, 1 ×; 62, 65, 67, 70, 71: 2.0 ×; 64, 68, 69: 5.0 ×



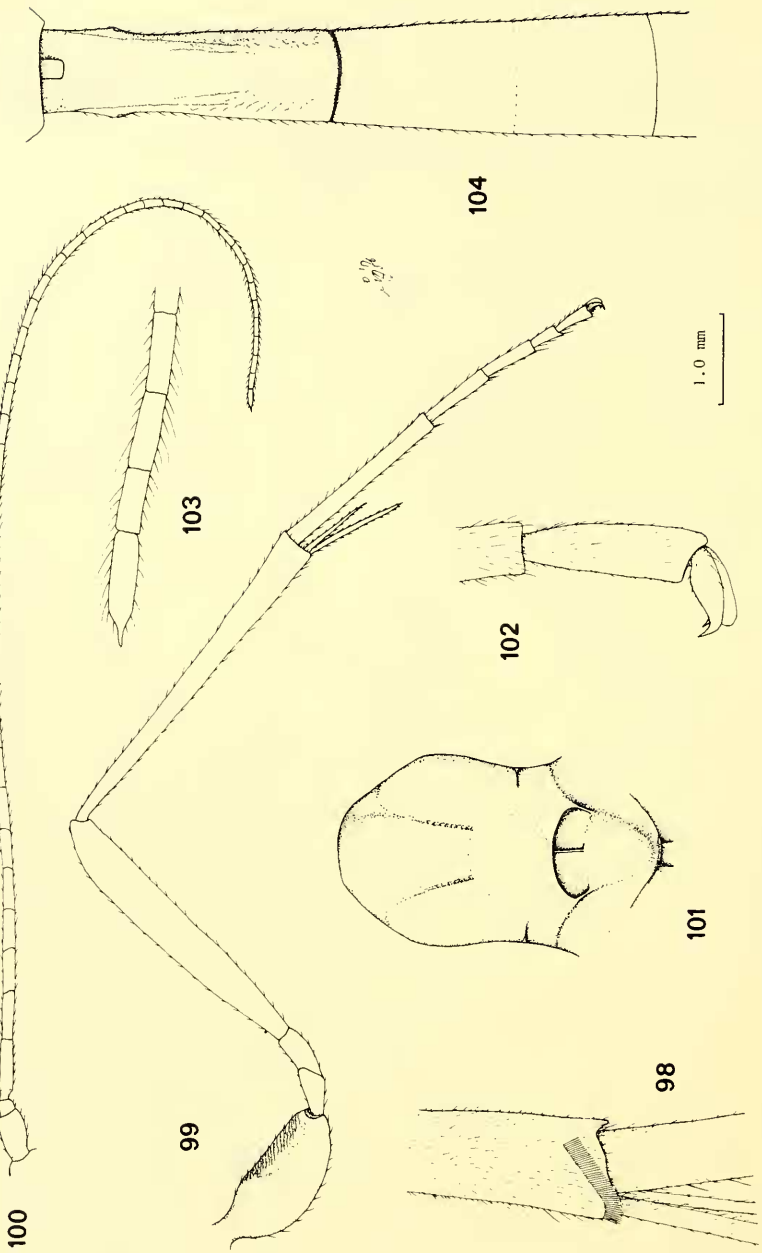
Figs. 72—79, *Charmon luteus* (Cameron), holotype. 72, habitus, lateral aspect; 73, ovipositor; 74, mesonotum, dorsal aspect; 75, wings; 76, head, dorsal aspect; 77, head, frontal aspect; 78, hind leg; 79, propodeum and 1st—2nd tergites, dorsal aspect. 72, 73, 75, 78: scale-line, 1 ×; 74—77, 79: 1.5 ×



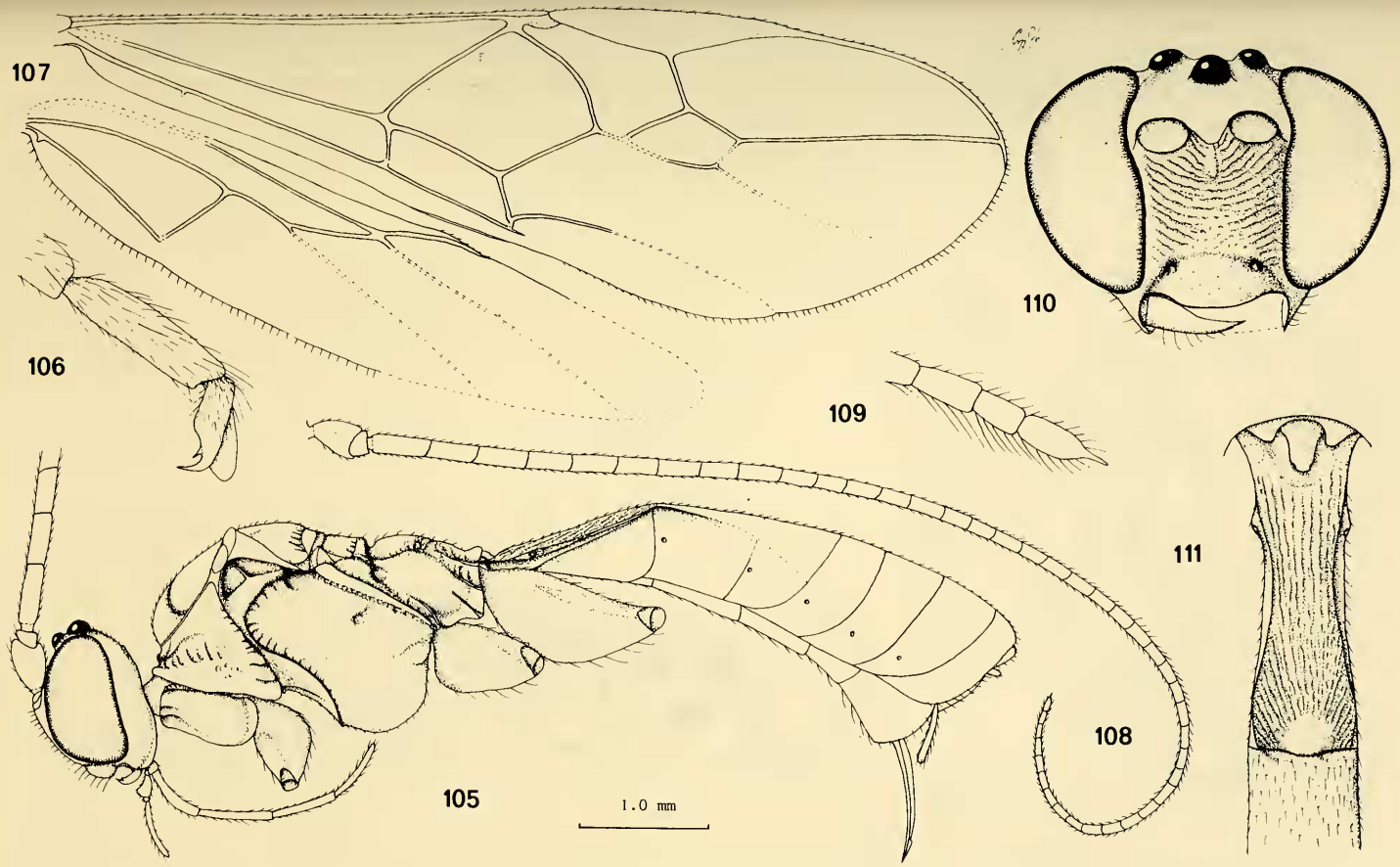
Figs. 80—91, *Exasticolus tuberculatus* spec. nov., holotype. 80, habitus, lateral aspect; 81, detail of vein SC + R1 of hind wing; 82, palpi; 83, antenna; 84, detail of veins 1A + 2A and 2A of fore wing; 85, wings; 86, head, dorsal aspect; 87, inner hind claw; 88, outer hind claw; 89, detail of middle coxa, dorso-lateral aspect; 90, 1st—3rd tergites, dorsal aspect; 91, head, frontal aspect. 80, 83, 85: scale-line, 1 ×; 81, 82, 84, 86, 89—91: 2.0 ×; 87, 88: 5.0 ×



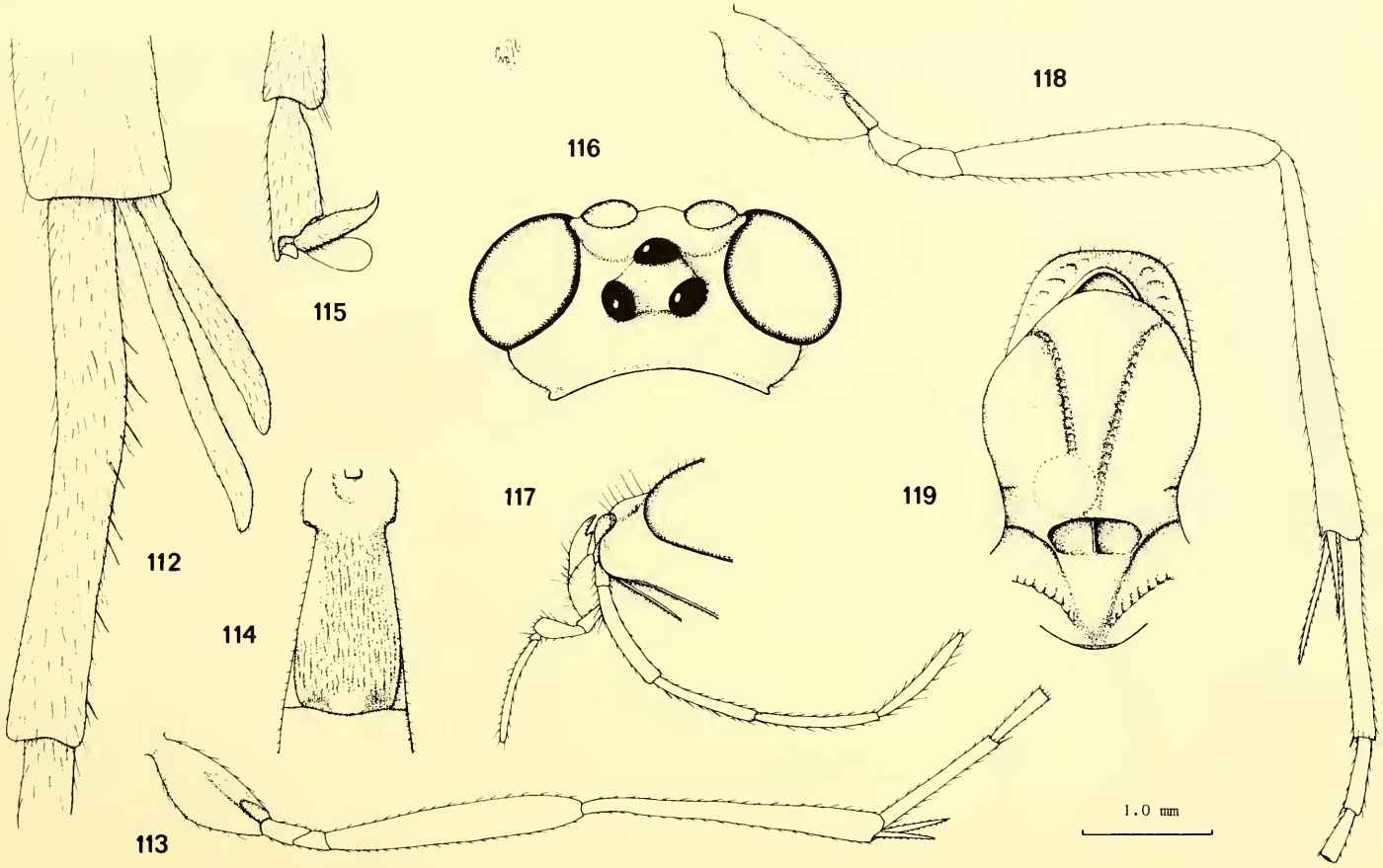
Figs. 92—97, *Exasticolus fuscicornis* (Cameron), holotype. 92, habitus, lateral aspect; 93, antenna; 94, wings; 95, head, dorsal aspect; 96, head, frontal aspect; 97, palpi. 92—94: scale-line, 1 ×; 95—97: 2.0 ×



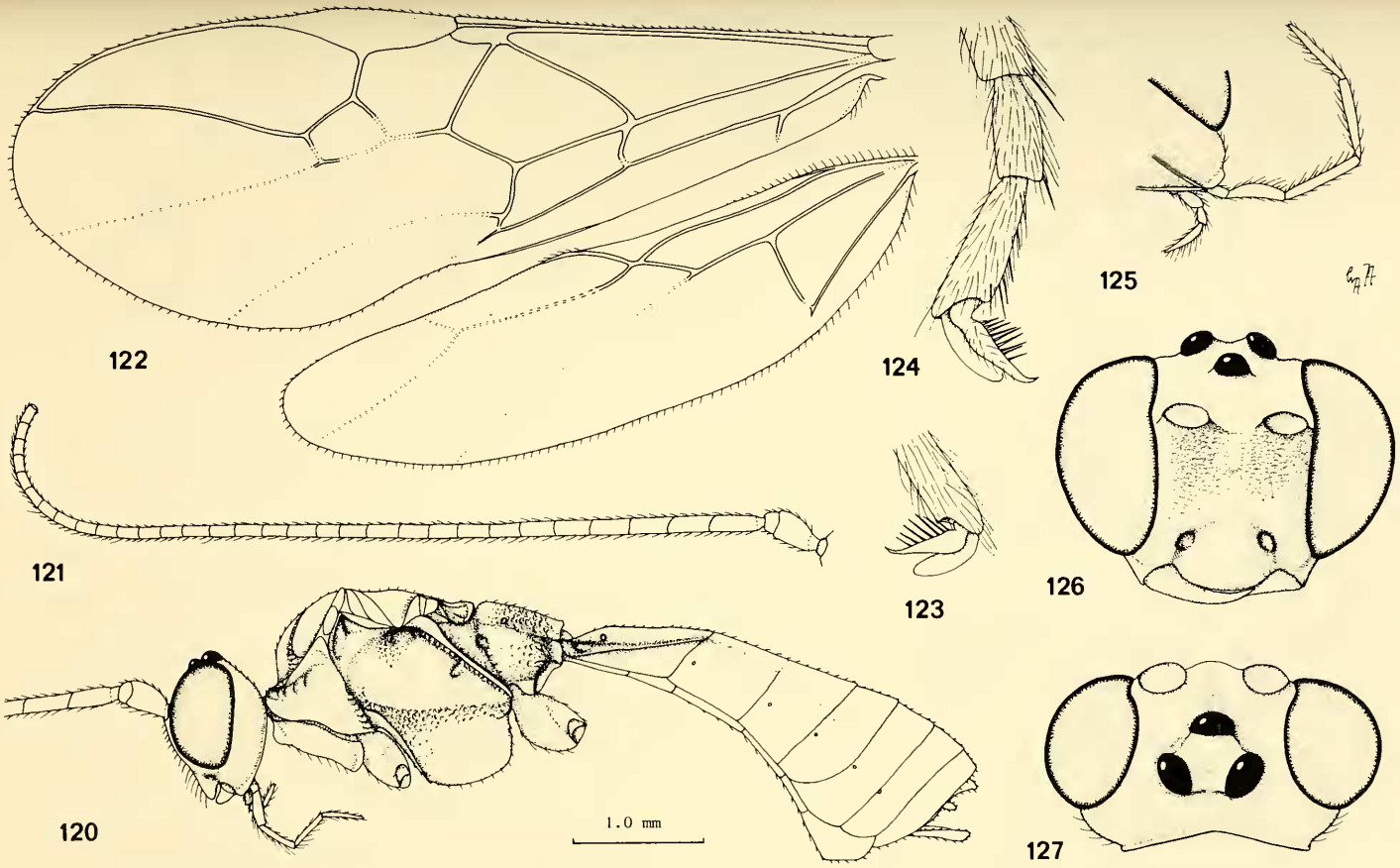
Figs. 98—104. *Exasticolus fusticornis* (Cameron), holotype, but 98, 100 and 103 after ♀ from Peru, Pucallpa. 98, apex of inner side of hind tibia, dorso-lateral aspect; 99, hind leg; 100, antenna; 101, mesonotum, dorsal aspect; 102, outer hind claw; 103, apex of antenna; 104, 1st—3rd tergites, dorsal aspect. 98, 102, 103: 5.0 ×; 99, 100: scale-line, 1 ×; 101, 104: 2.0 ×



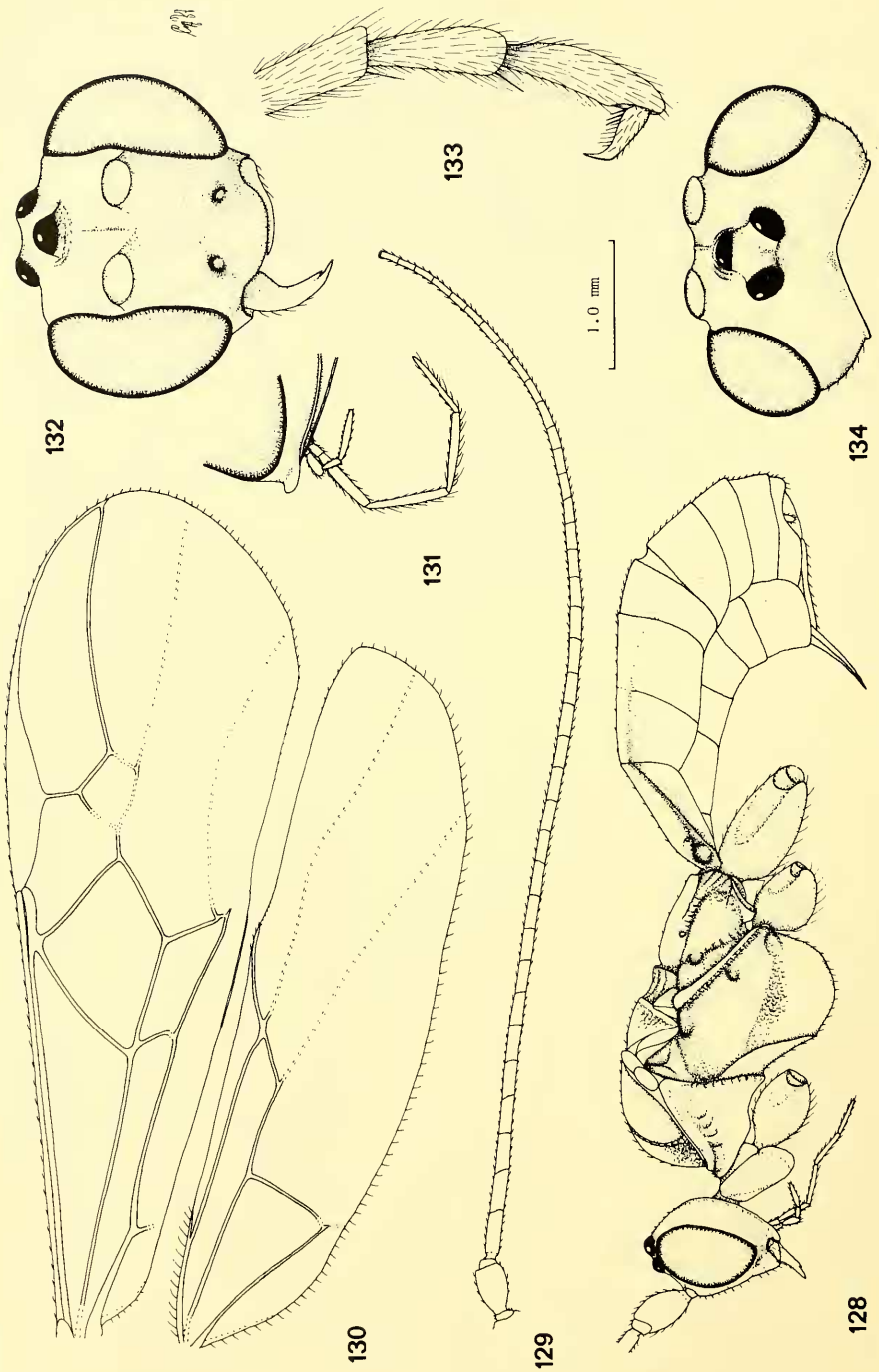
Figs. 105—111, *Exasticolus nigriceps* (Enderlein), holotype. 105, habitus, lateral aspect; 106, outer middle claw; 107, wings; 108, antenna; 109, apex of antenna; 110, head, frontal aspect; 111, 1st tergite, dorsal aspect. 105, 107, 108: scale-line, 1 ×; 106, 109: 4.2 ×; 110, 111: 1.8 ×



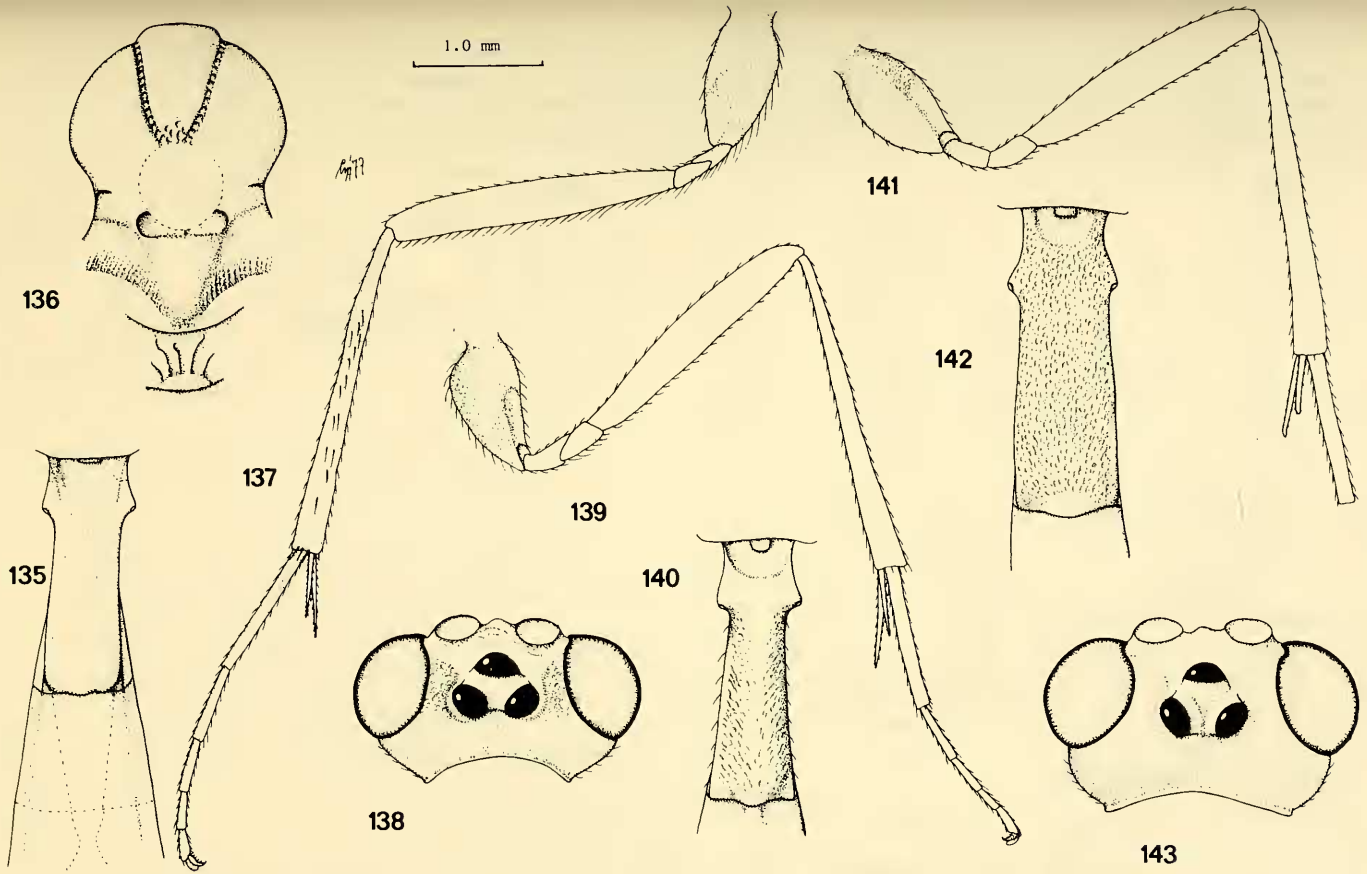
Figs. 112—115, *Homolobus (Apatia) unicolor* (Enderlein), paralectotype, ♂ (but 113 of lectotype). 112, detail of hind tibial spurs, lateral aspect; 113, hind leg; 114, 1st tergite, dorsal aspect; 115, outer hind claw. Figs. 116—119, *Exasticolus nigriceps* (Enderlein), holotype. 116, head, dorsal aspect; 117, palpi; 118, hind leg; 119, mesonotum, dorsal aspect. 112, 115: 4.2 ×; 113, 118: scale-line, 1 ×; 114, 116, 117, 119: 1.8 ×



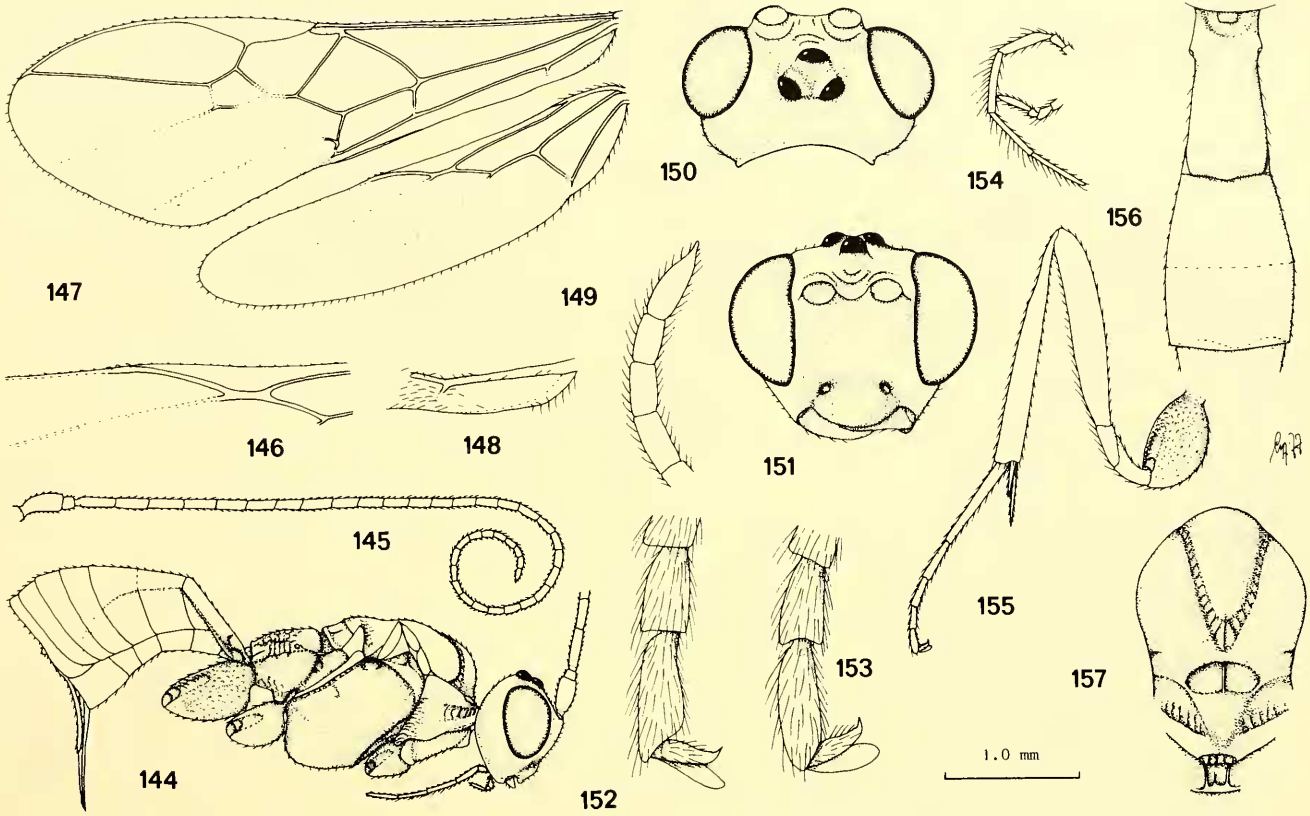
Figs. 120—127, *Homolobus (Apatia) elagabalus* (Nixon), holotype. 120, habitus, lateral aspect; 121, antenna; 122, wings; 123, outer fore claw; 124, inner middle claw; 125, palpi; 126, head, frontal aspect; 127, head, dorsal aspect. 120—122: scale-line, 1 ×; 123, 124: 5.0 ×; 125—127: 2.0 ×



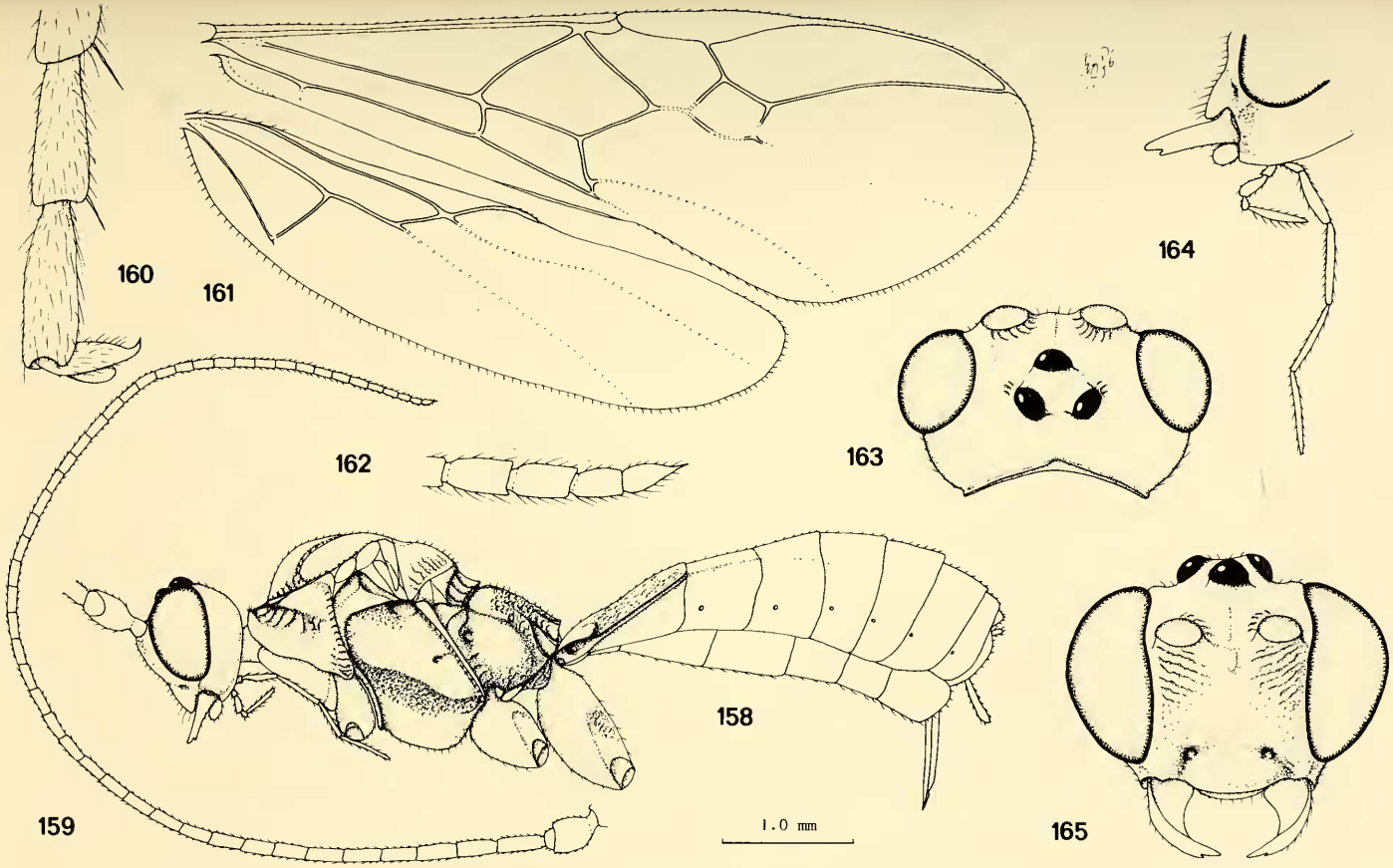
Figs. 128—134, *Homolobus (Apatia) australiensis* (Nixon), holotype. 128, habitus, lateral aspect; 129, antenna; 130, wings; 131, palpi; 132, head, frontal aspect; 133, inner hind claw; 134, head, dorsal aspect. 128—130: scale-line, 1 ×; 131, 132, 134: 2.0 ×; 133: 5.0 ×



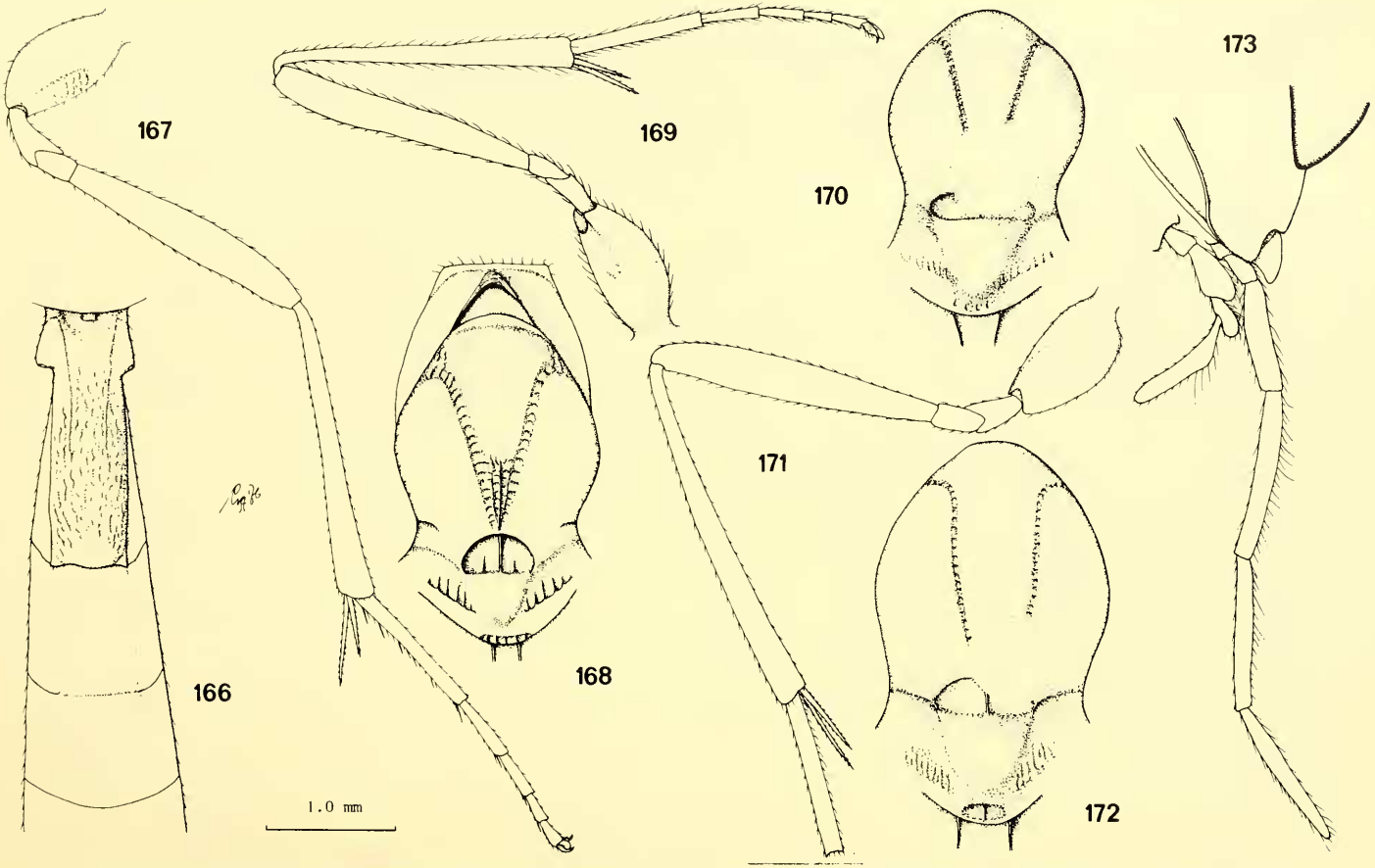
Figs. 135—137, *Homolobus (Apatia) australiensis* (Nixon), holotype. 135, 1st—3rd tergits, dorsal aspect; 136, mesonotum, dorsal aspect; 137, hind leg. Figs. 138—140, *Homolobus (Apatia) priapus* (Nixon), holotype. 138, head, dorsal aspect; 139, hind leg; 140, 1st tergite, dorsal aspect. Figs. 141—143, *Homolobus (Apatia) pulchricornis* (Nixon), holotype. 141, hind leg; 142, 1st tergite, dorsal aspect; 143, head, dorsal aspect. 135, 136: 2.0 ×; 137: scale-line, 1 ×; 138, 140, 142, 143: 1.8 ×; 139, 141: 0.9 ×



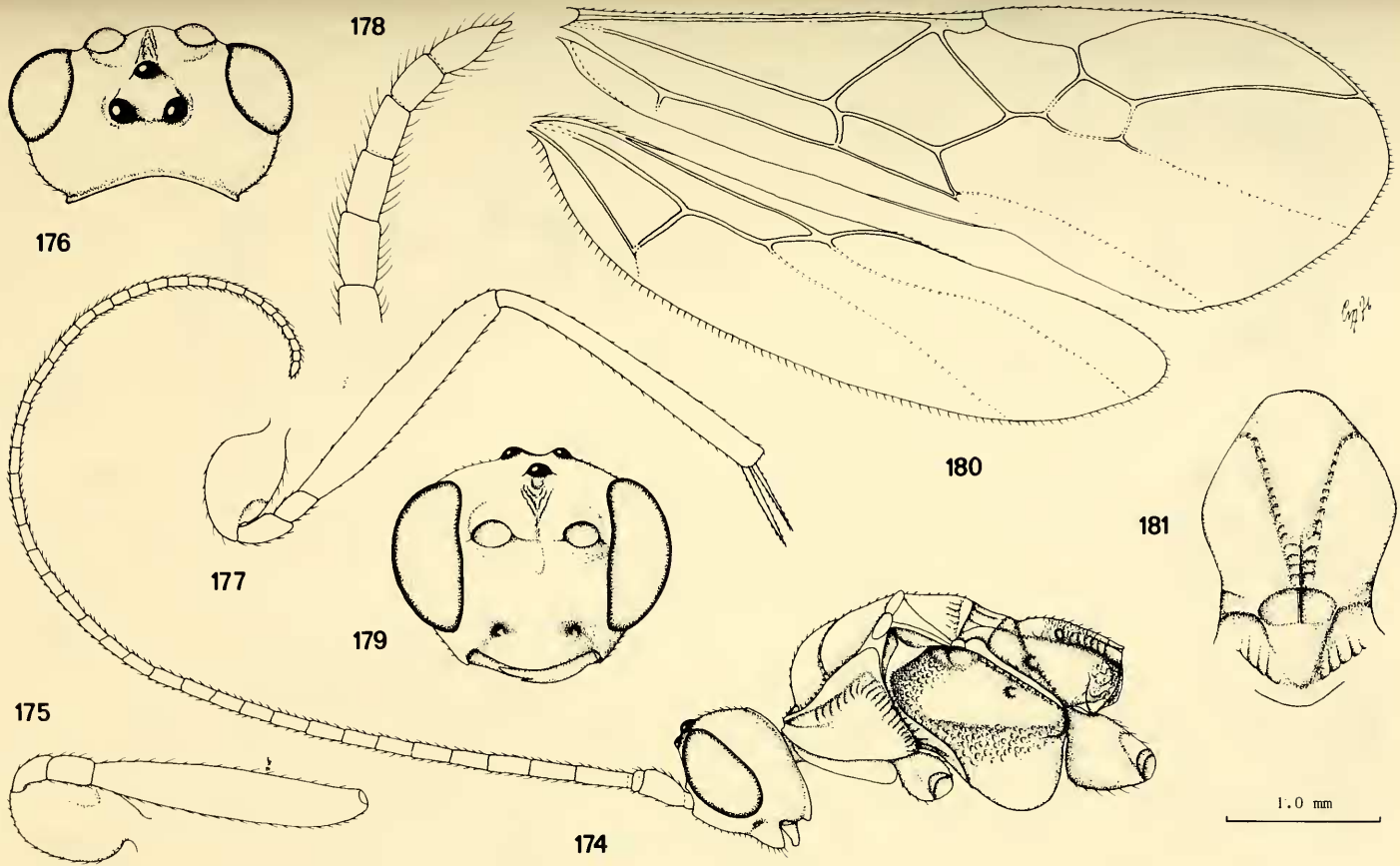
Figs. 144-157, *Homolobus (Apatia) albipalpis* (Granger), ♀, Malagasy, Ranomafana. 144, habitus, lateral aspect; 145, antenna; 146, detail of vein SC + R1 of hind wing; 147, wings; 148, detail of veins 1A + 2A and 2A of fore wing; 149, apex of antenna; 150, head, dorsal aspect; 151, head, frontal aspect; 152, inner hind claw; 153, outer hind claw; 154, palpi; 155, hind leg; 156, 1st—3rd tergites, dorsal aspect; 157, mesonotum, dorsal aspect. 144, 145, 147, 155: scale-line, 1 ×; 146, 148, 150, 151, 154, 156, 157: 2.0 ×; 149, 152, 153: 5.0 ×



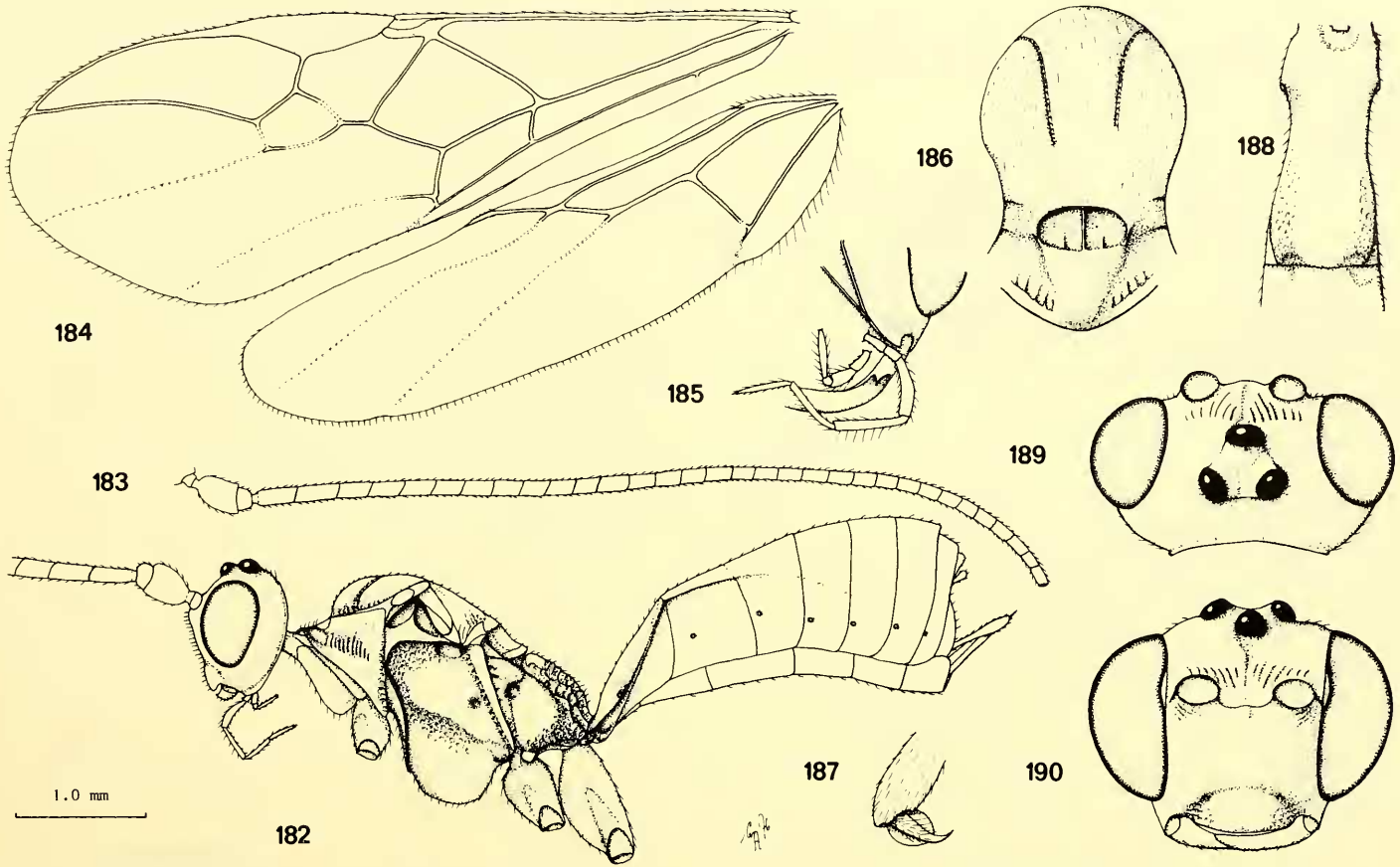
Figs. 158—165, *Homolobus (Apatia) truncator* (Say), neotype. 158, habitus, lateral aspect; 159, antenna; 160, outer hind claw; 161, wings; 162, apex of antenna; 163, head, dorsal aspect; 164, palpi; 165, head, frontal aspect. 158, 159, 161: scale-line, 1 ×; 160, 162: 5.0 ×; 163—165: 2.0 ×



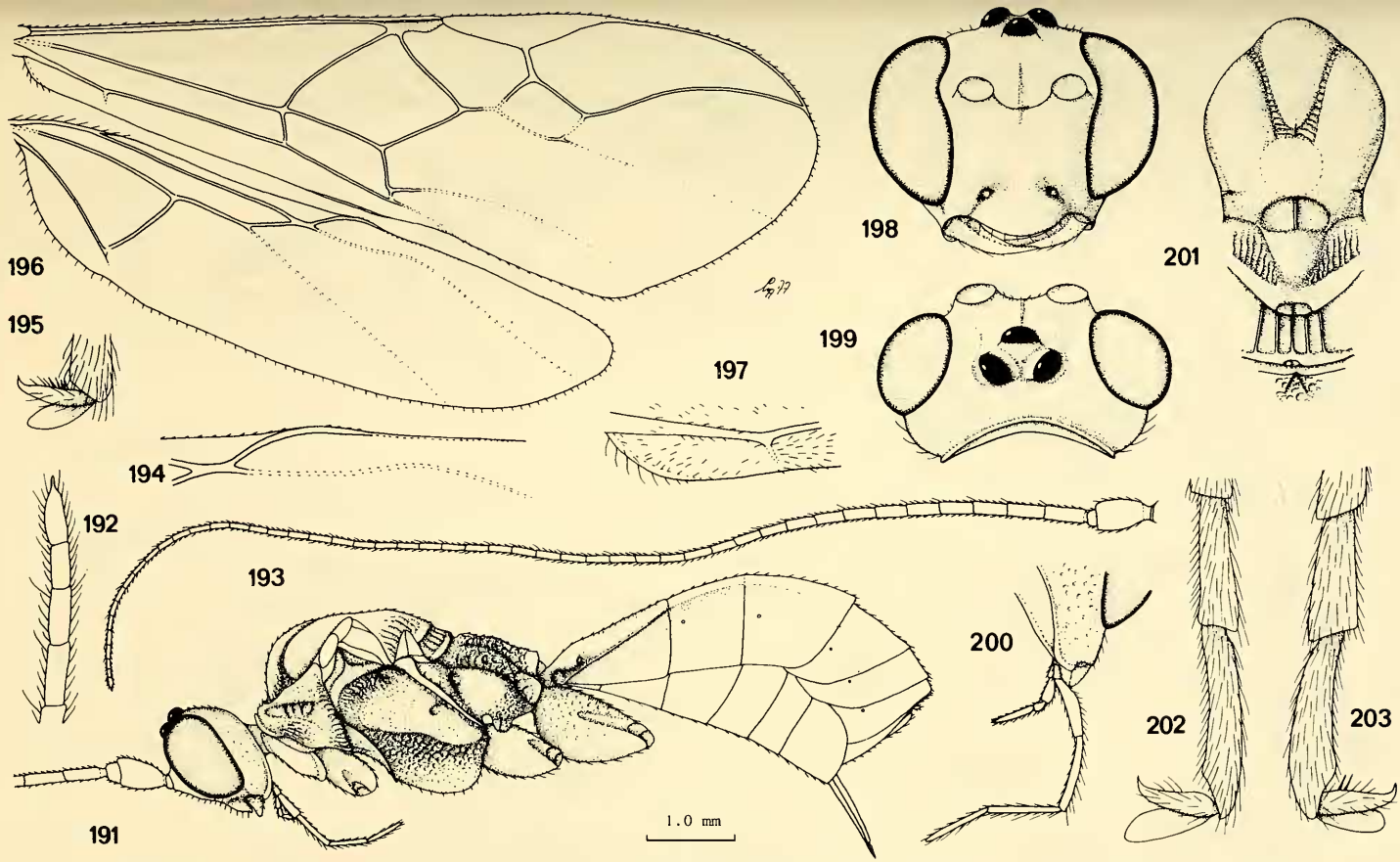
Figs. 166—168, *Homolobus (Apatia) truncator* (Say), neotype. 166, 1st-3rd tergites, dorsal aspect; 167, hind leg; 168, mesonotum, dorsal aspect. Figs. 169, 170, *Homolobus (Homolobus) discolor* (Wesmael), lectotype. 169, hind leg; 170, mesonotum, dorsal aspect. Figs. 171—173, *Homolobus (Chartolobus) wesmaeli* (Bengtsson), lectotype. 171, hind leg; 172, mesonotum, dorsal aspect; 173, palpi. 166, 168, 170, 172: 2.0 ×; 167, 169, 171: scale-line, 1 ×; 173: 3.0 ×



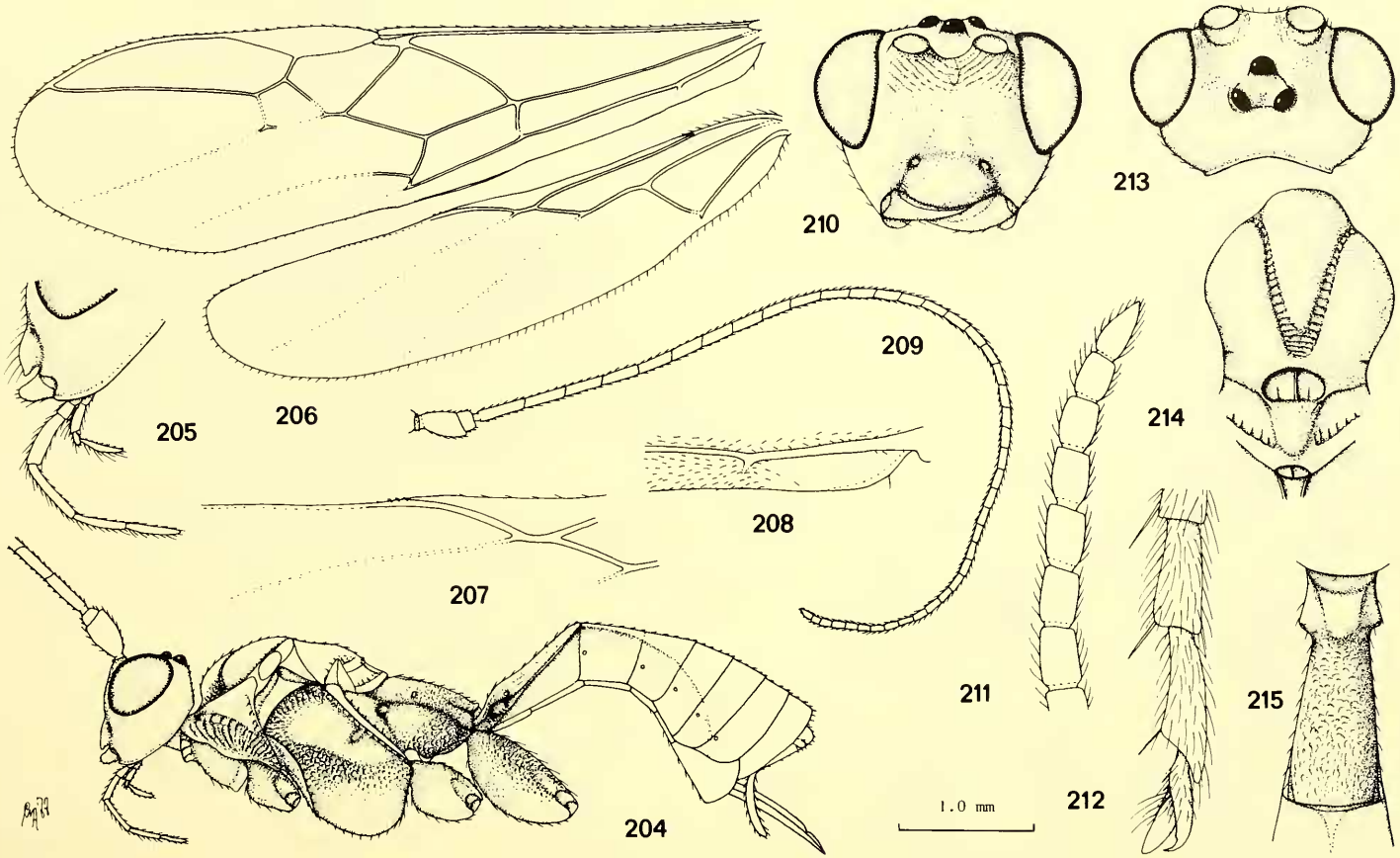
Figs. 174—176, 178—181, *Homolobus (Apatia) crassicalcaratus* (Viereck), holotype. 174, habitus, lateral aspect; 175, hind leg (remnant); 176, head, dorsal aspect; 178, apex of antenna; 179, head, frontal aspect; 180 wings; 181, mesonotum, dorsal aspect. Fig. 177, *Homolobus (Apatia) pallidistigmus* (Cameron), holotype, middle leg. 174, 175, 180: scale-line, 1 ×; 176, 179, 181: 1.5 ×; 177: 0.8 ×; 178: 5.0 ×



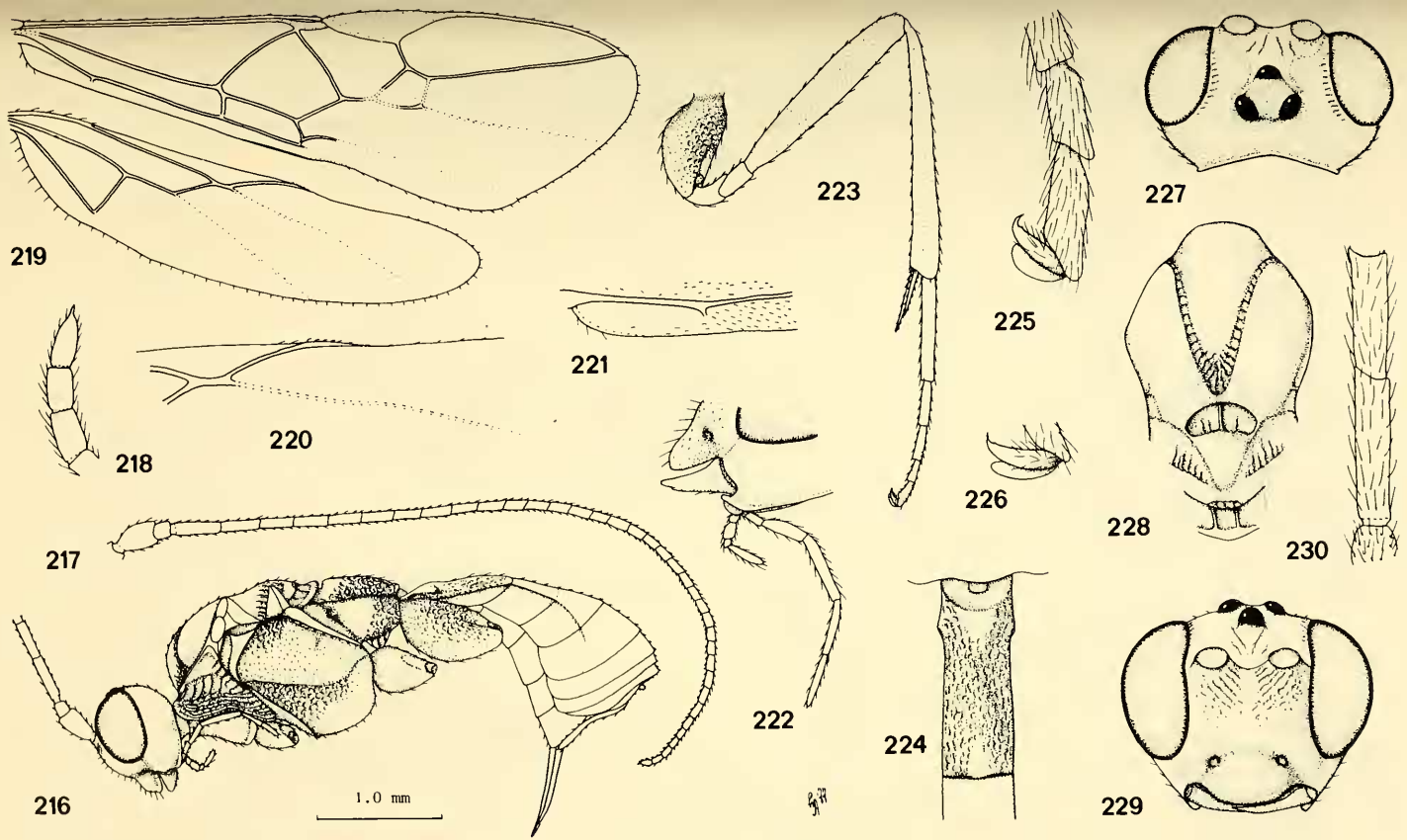
Figs. 182—190, *Homolobus (Apatia) unicolor* (Enderlein), lectotype. 182, habitus, lateral aspect; 183, antenna; 184, wings; 185, palpi; 186, mesonotum, dorsal aspect; 187, fore claw; 188, 1st tergite, dorsal aspect; 189, head, dorsal aspect; 190, head, frontal aspect. 182—184: scale-line, 1 ×; 185, 186, 188—190: 2.0 ×; 187: 5.0 ×



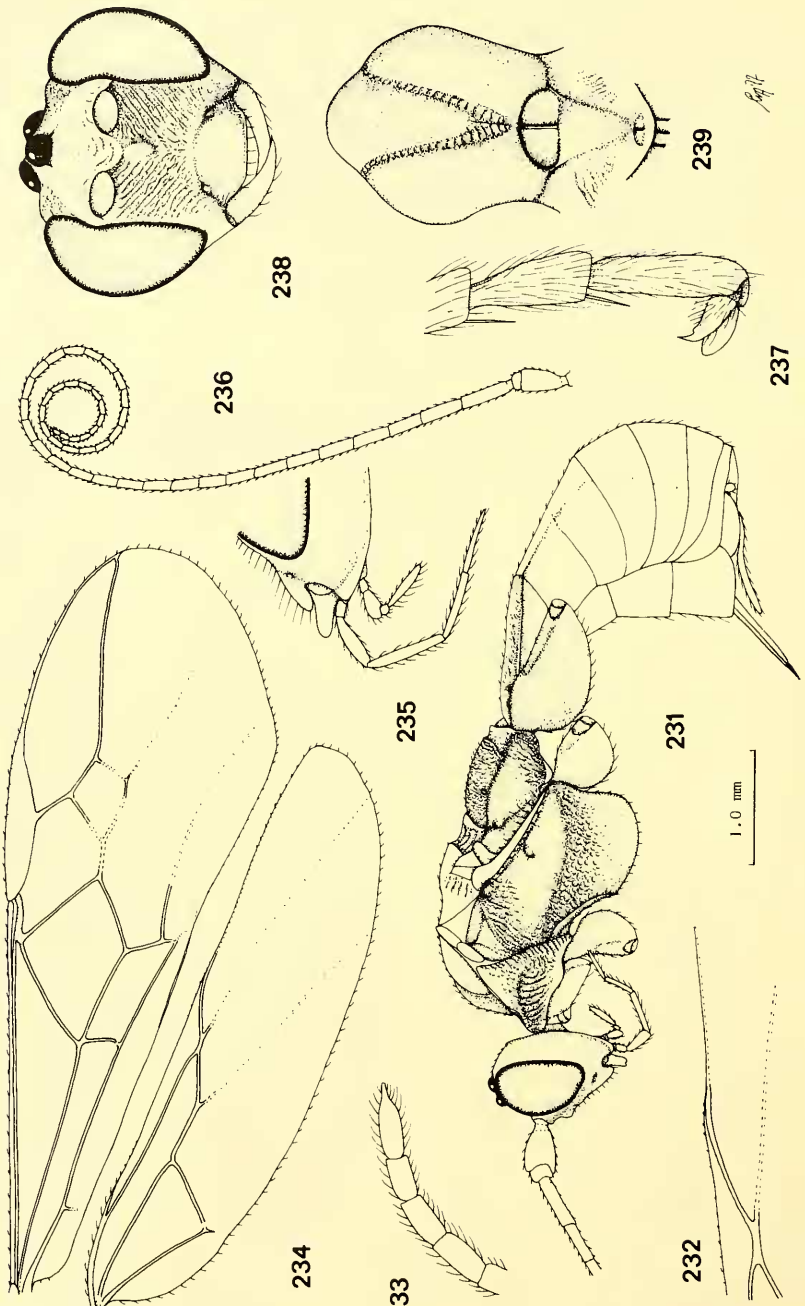
Figs. 191—203, *Homolobus (Apatia) rufithorax* (Granger), lectotype. 191, habitus, lateral aspect; 192, apex of antenna; 193, antenna; 194, detail of veins SC + R1 and SR of hind wing; 195, inner fore claw; 196, wings; 197, detail of vein 1A + 2A of fore wing; 198, head, frontal aspect; 199, head, dorsal aspect; 200, palpi; 201, mesonotum, dorsal aspect; 202, inner hind claw; 203, outer hind claw. 191, 193, 196: scale-line, 1 ×; 192, 195, 202, 203: 5.0 ×; 194, 197—201: 2.0 ×



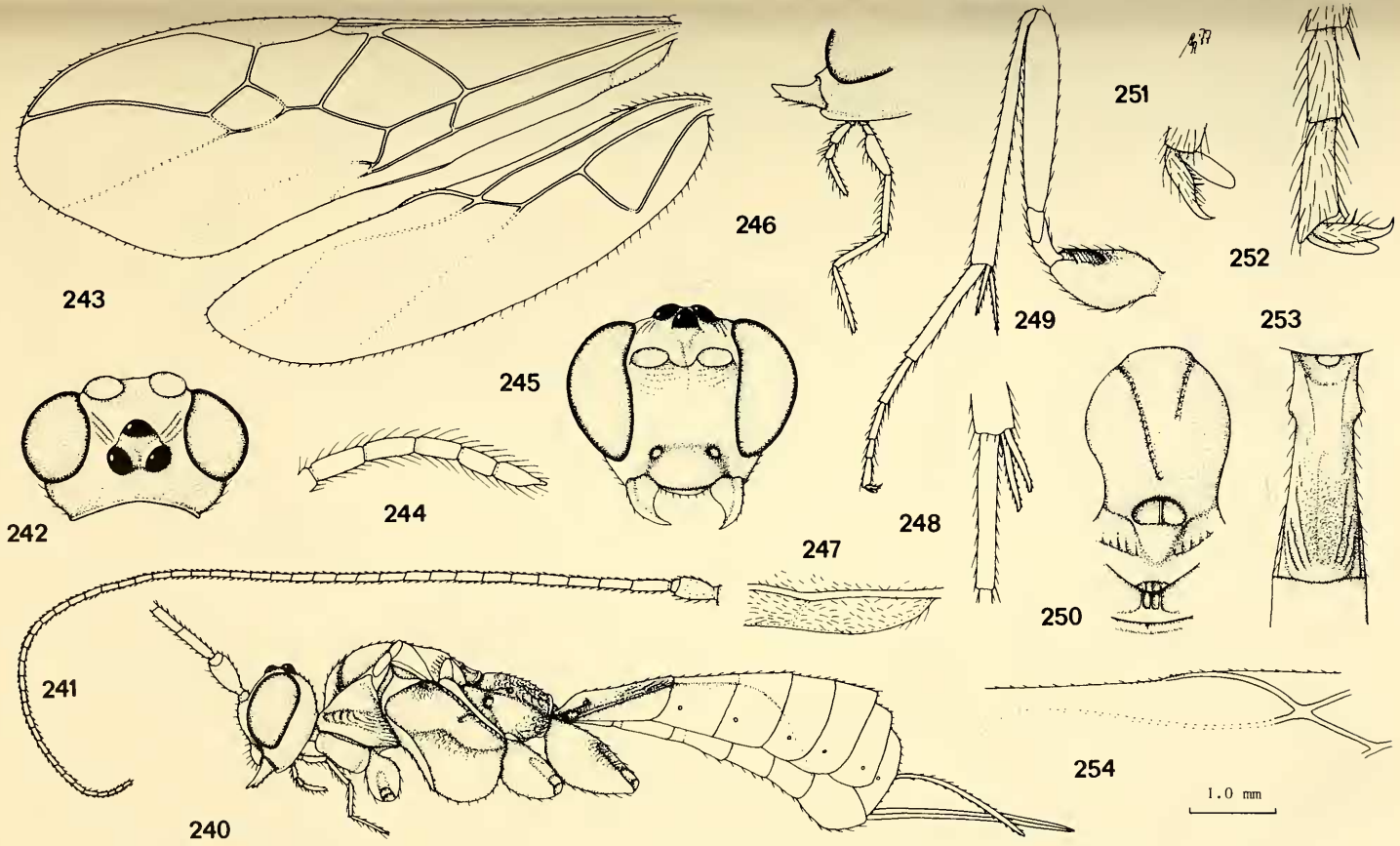
Figs. 204—215, *Homolobus (Apatia) maculatus* spec. nov., holotype. 204, habitus, lateral aspect; 205, palpi; 206, wings; 207, detail of veins SC + R1 and SR of hind wing; 208, detail of vein 1A + 2A of fore wing; 209, antenna; 210, head, frontal aspect; 211, apex of antenna; 212, inner hind claw; 213, head, dorsal aspect; 214, mesonotum, dorsal aspect; 215, 1st tergite, dorsal aspect. 204, 206, 209: scale-line, 1 ×; 205, 207, 208, 210, 213—215: 2.0 ×; 211. 212: 5.0 ×



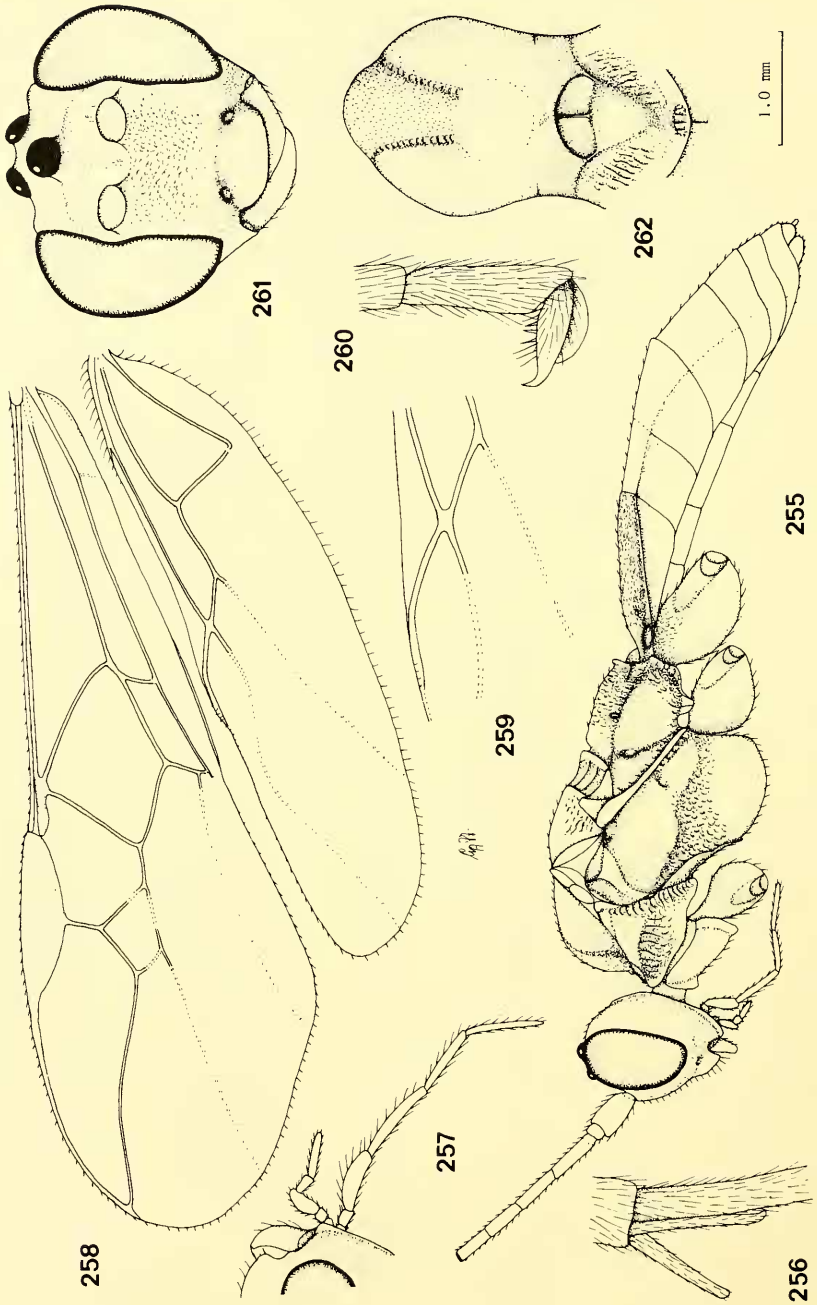
Figs. 216—230, *Homolobus (Apatia) alternipes* spec. nov., holotype. 216, habitus, lateral aspect; 217, antenna; 218, apex of antenna; 219, wings; 220, detail of veins SC + R1 and SR of hind wing; 221, detail of vein 1A + 2A of fore wing; 222, palpi; 223, hind leg; 224, 1st tergite, dorsal aspect; 225, inner hind claw; 226, outer hind claw; 227, head, dorsal aspect; 228, mesonotum, dorsal aspect; 229, head, frontal aspect; 230, 3rd and 4th antennal segments, inner aspect. 216, 217, 219, 223: scale-line, 1 ×; 218, 225, 226: 5.0 ×; 220—222, 224, 227—229: 2.0 ×; 230: 3.0 ×



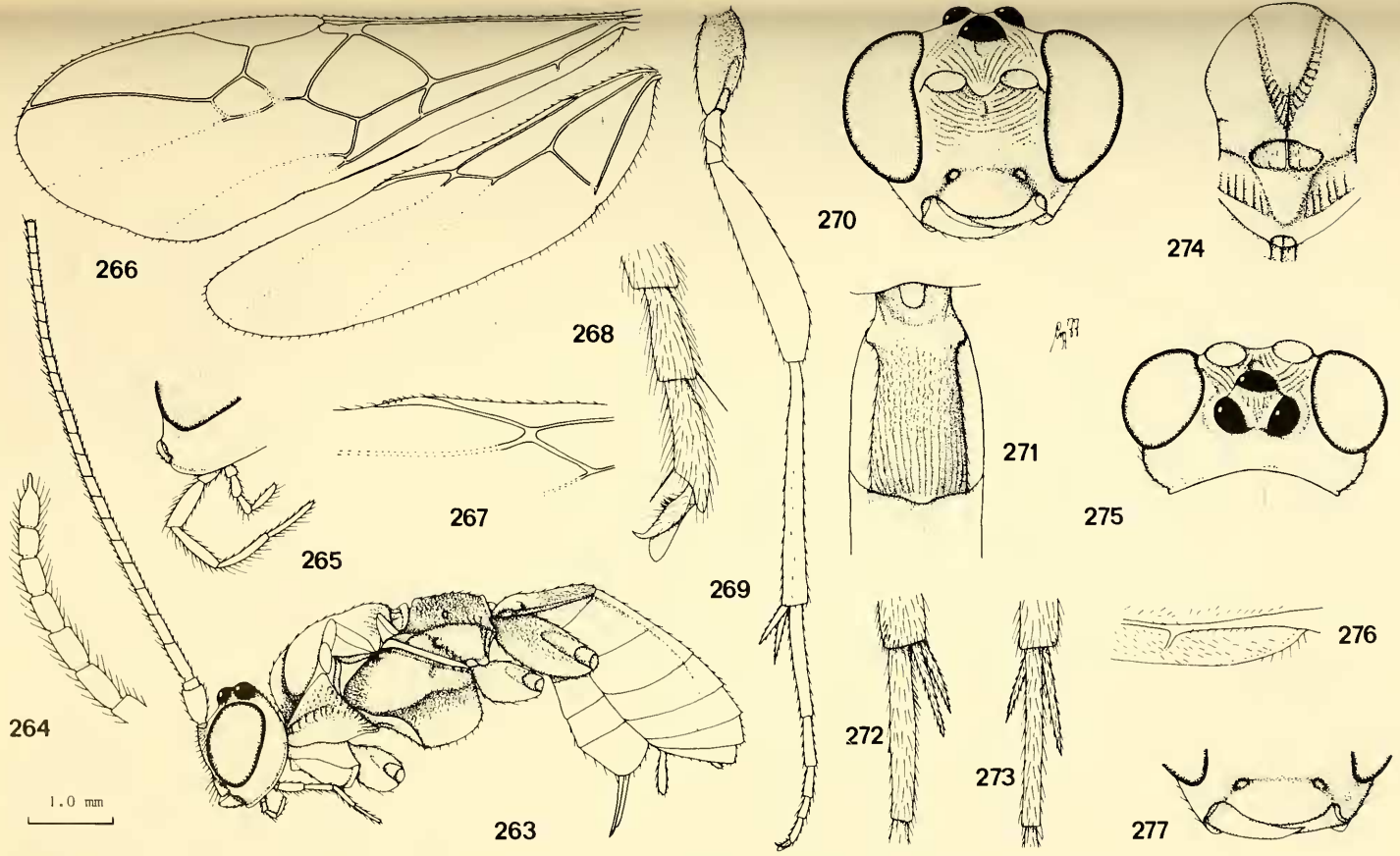
Figs. 231—239, *Homolobus (Apatia) priapus* (Nixon), holotype. 231, habitus, lateral aspect; 232, detail of veins SC + R1 and SR of hind wing; 233, apex of antenna; 234, wings; 235, palpi; 236, antenna; 237, inner hind claw; 238, head, frontal aspect; 239, mesonotum, dorsal aspect. 231, 234, 236: scale-line, 1 ×; 232, 235, 238, 239: 2.0 ×; 233, 237: 5.0 ×



Figs. 240—254, *Homolobus (Apatia) lacteiceps* spec. nov., holotype, but 249 of allotype. 240, habitus, lateral aspect; 241, antenna; 242, head, dorsal aspect; 243, wings; 244, apex of antenna; 245, head, frontal aspect; 246, palpi; 247, detail of vein 1A + 2A of fore wing; 248; hind leg; 249, hind tibial spurs of ♂, lateral aspect; 250, mesonotum, dorsal aspect; 251, outer hind claw; 252, inner hind claw; 253, 1st tergite, dorsal aspect; 254, detail of veins SC + R1 and SR of hind wing. 240, 241, 243, 248: scale-line, 1 ×; 242, 245—247, 249, 250, 253, 254: 2.0 ×; 244, 251, 252: 5.0 ×



Figs. 255—262. *Homolobus (Apatia) pulchricornis* (Nixon), holotype. 255, habitus, lateral aspect; 256, hind tibial spurs, lateral aspect; 257, palpi; 258, wings; 259, detail of vein SC+R1 of hind wing; 260, inner middle claw; 261, head, frontal aspect; 262, mesonotum, dorsal aspect. 255, 258: scale-line, 1 ×; 256, 257, 259, 261, 262: 2.0 ×



Figs. 263—277, *Homolobus (Apatia) huddlestoni* spec. nov., holotype, but 264, 272, 273 and 277 of allotype. 263, habitus, lateral aspect; 264, apex of antenna; 265, palpi; 266, wings; 267, detail of veins SC + R1 and SR of hind wing; 268, outer hind claw; 269, hind leg; 270, head, frontal aspect; 271, 1st tergite, dorsal aspect; 272, hind tibial spurs of ♂, lateral aspect; 273, hind tibial spurs of ♂, dorsal aspect; 274, mesonotum, dorsal aspect; 275, head, dorsal aspect; 276, detail of vein 1A + 2A of fore wing; 277, detail of clypeal region of ♂. 263, 266, 269: scale-line, 1 ×; 264, 268: 5.0 ×; 265, 267, 270—277: 2.0 ×

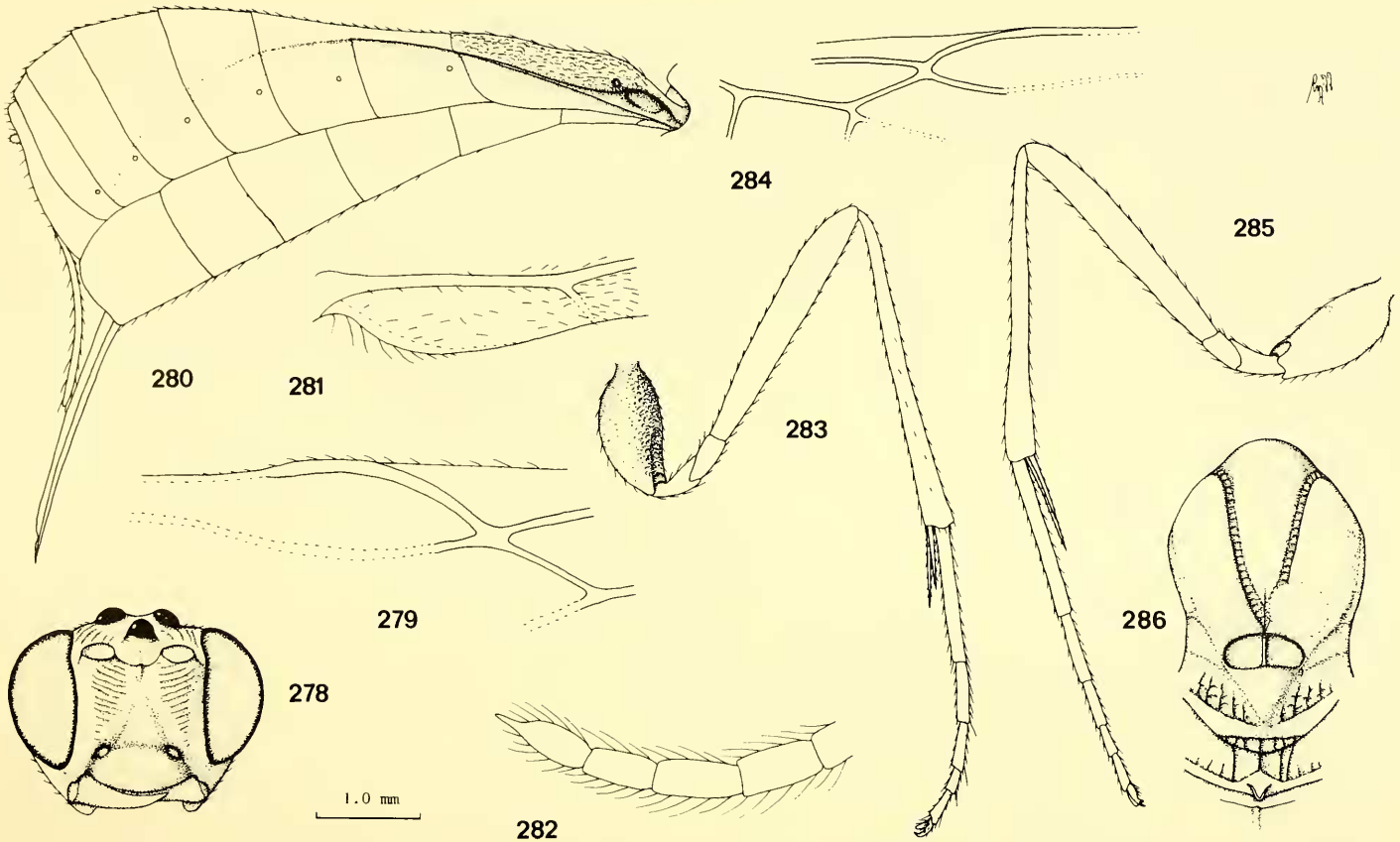
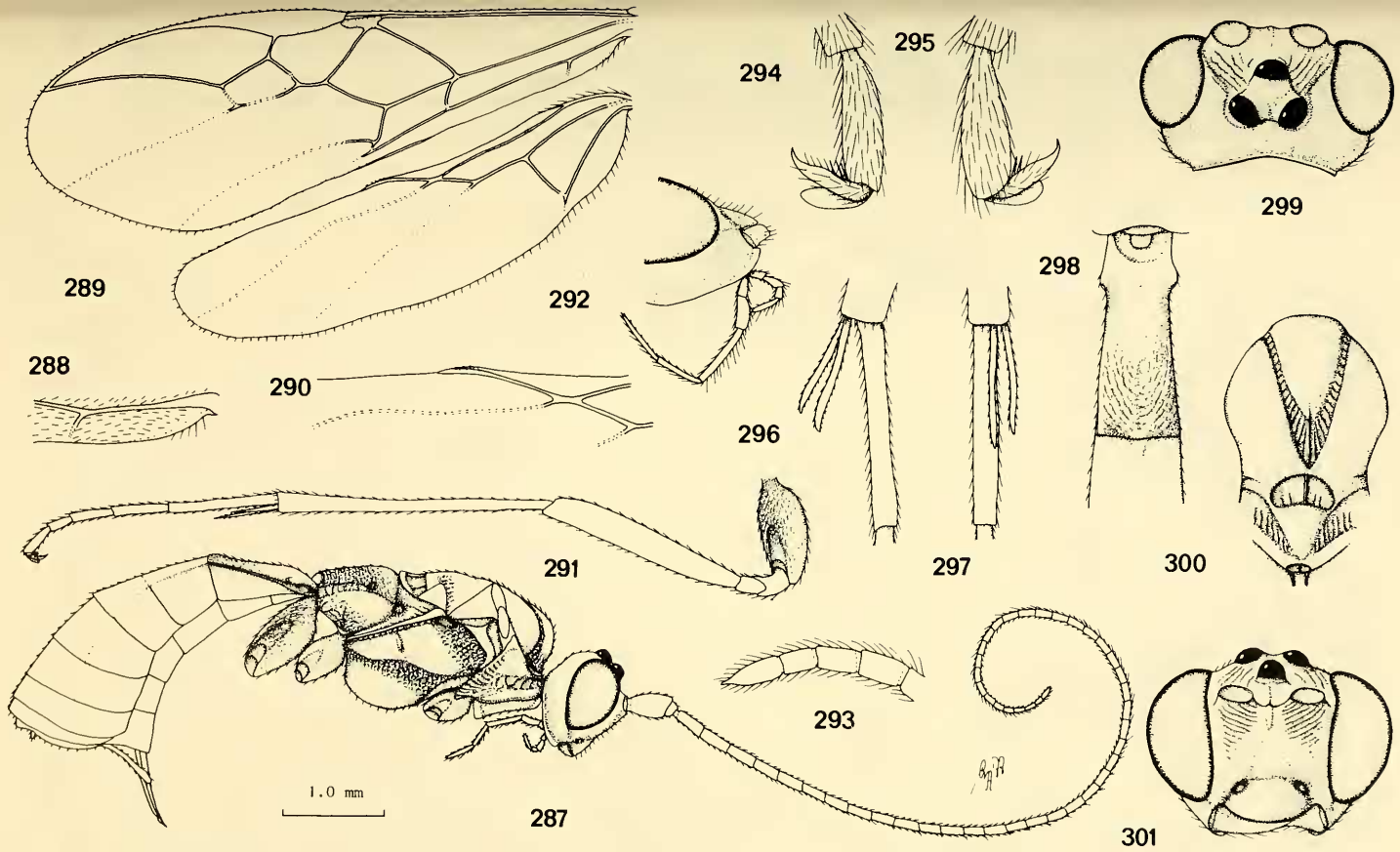
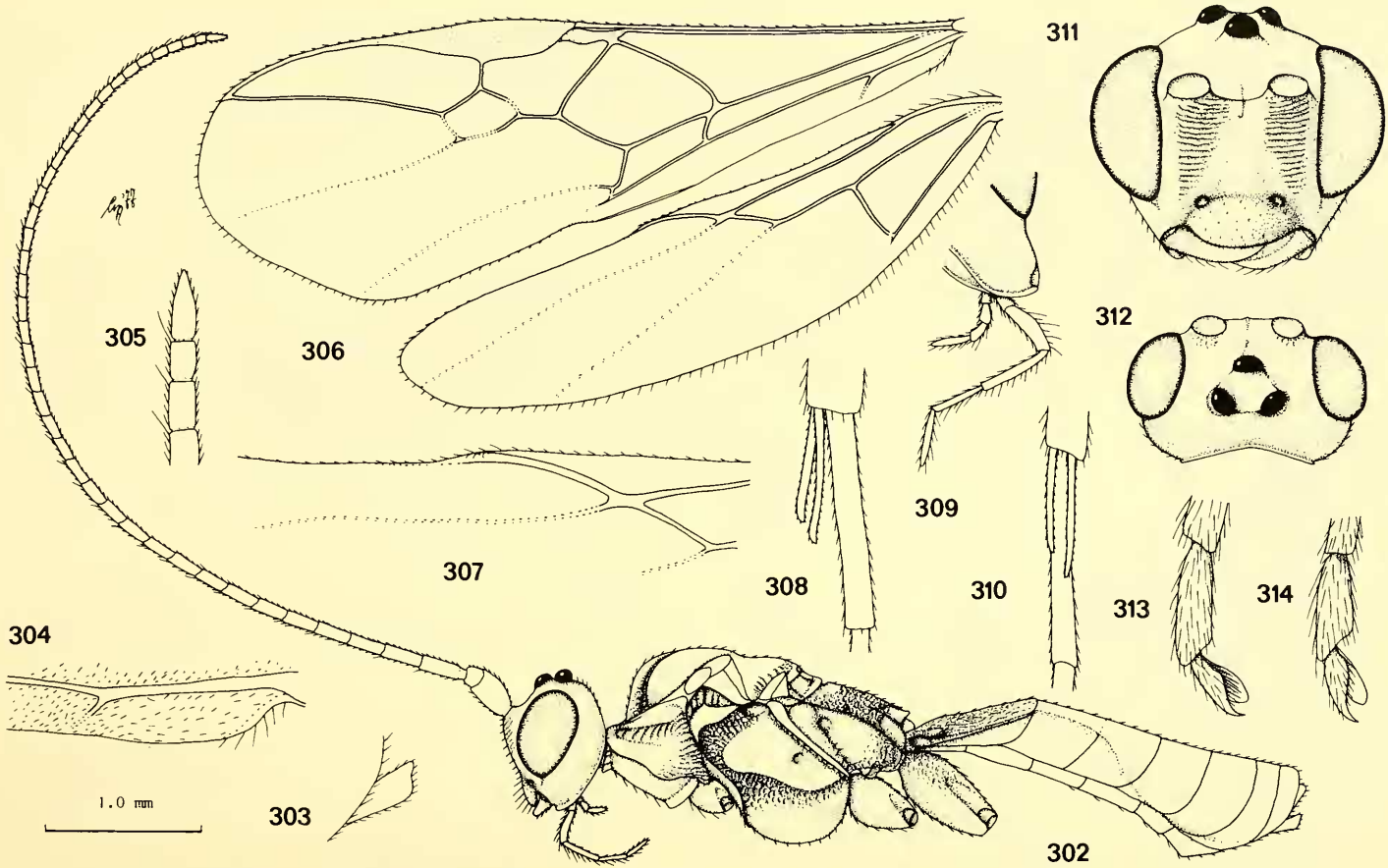


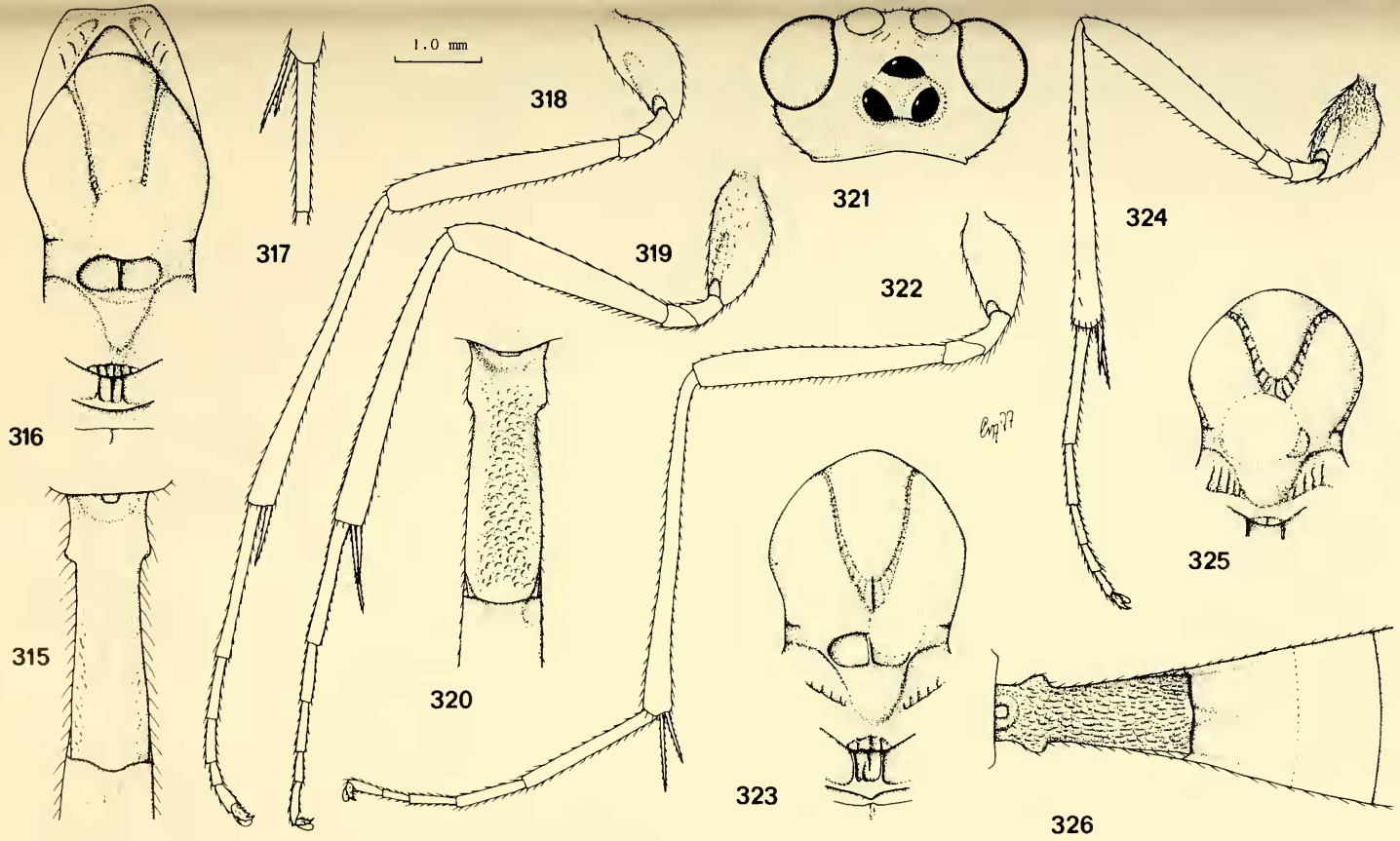
Fig. 278, *Homolobus (Apatia) ophioninus* (Vachal), ♂, Kenya, S. W. Elgon, head, frontal aspect. Figs. 279—282, *Homolobus (Apatia) pulchricornis* (Nixon), allotype. 279, detail of veins SC + R1 and SR of hind wing; 280, metasoma, lateral aspect; 281, detail of vein 1A + 2A of fore wing; 282, apex of antenna. Fig. 283, *Homolobus (Apatia) maculatus* spec. nov., holotype, hind leg. Fig. 284, *Homolobus (Apatia) elagabalus* (Nixon), Philippines, Manila, ♀, detail of veins lr-m and m-cu of hind wing. Figs. 285, 286, *Homolobus (Phylacter) bifurcatus* spec. nov., holotype, 285, hind leg; 286, mesonotum, dorsal aspect. 278, 284: 2.0 × scale-line; 279, 281: 2.6 × scale-line; 280, 283: 1.3 × scale-line; 282: 6.5 × scale-line; 285: 0.8 × scale-line; 286: 1.6 × scale-line



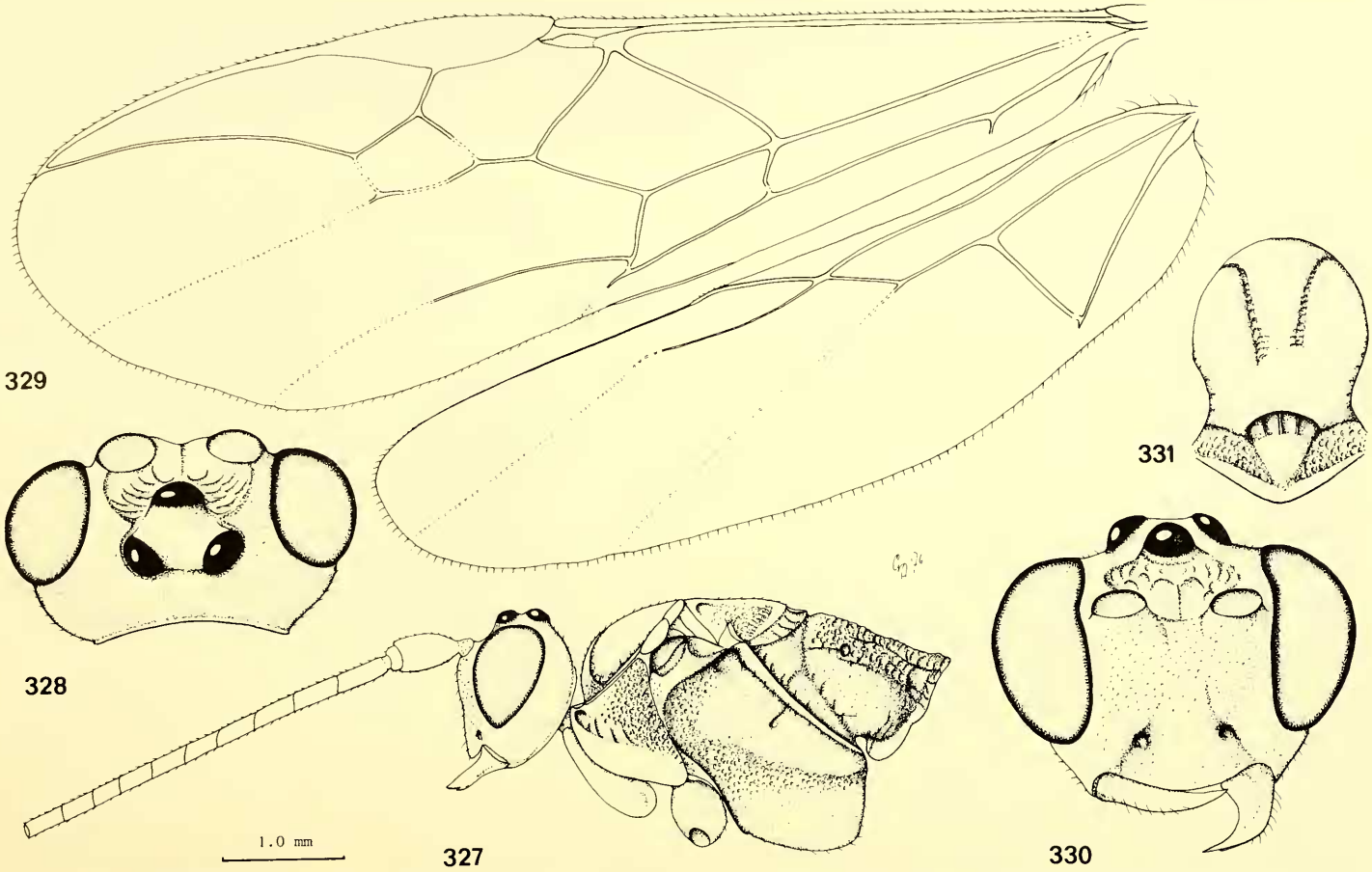
Figs. 287—301, *Homolobus (Apatia) ophioninus* (Vachal), ♀, Kenya, S. W. Elgon, but 296 and 297 of ♂. 287, habitus, lateral aspect; 288, detail of vein 1A + 2A of fore wing; 289, wings; 290, detail of veins SC + R1 and SR of hind wing; 291, hind leg; 292, palpi; 293, apex of antenna; 294, inner hind claw; 295, outer hind claw; 296, hind tibial spurs of ♂, lateral aspect; 297, hind tibial spurs of ♂, ventral aspect; 298, 1st tergite, dorsal aspect; 299, head, dorsal aspect; 300, mesonotum, dorsal aspect; 301, head, frontal aspect, 287, 289, 291: scale-line, 1 ×; 288, 290, 292, 296—301: 2.0 ×; 293—295: 5.0 ×



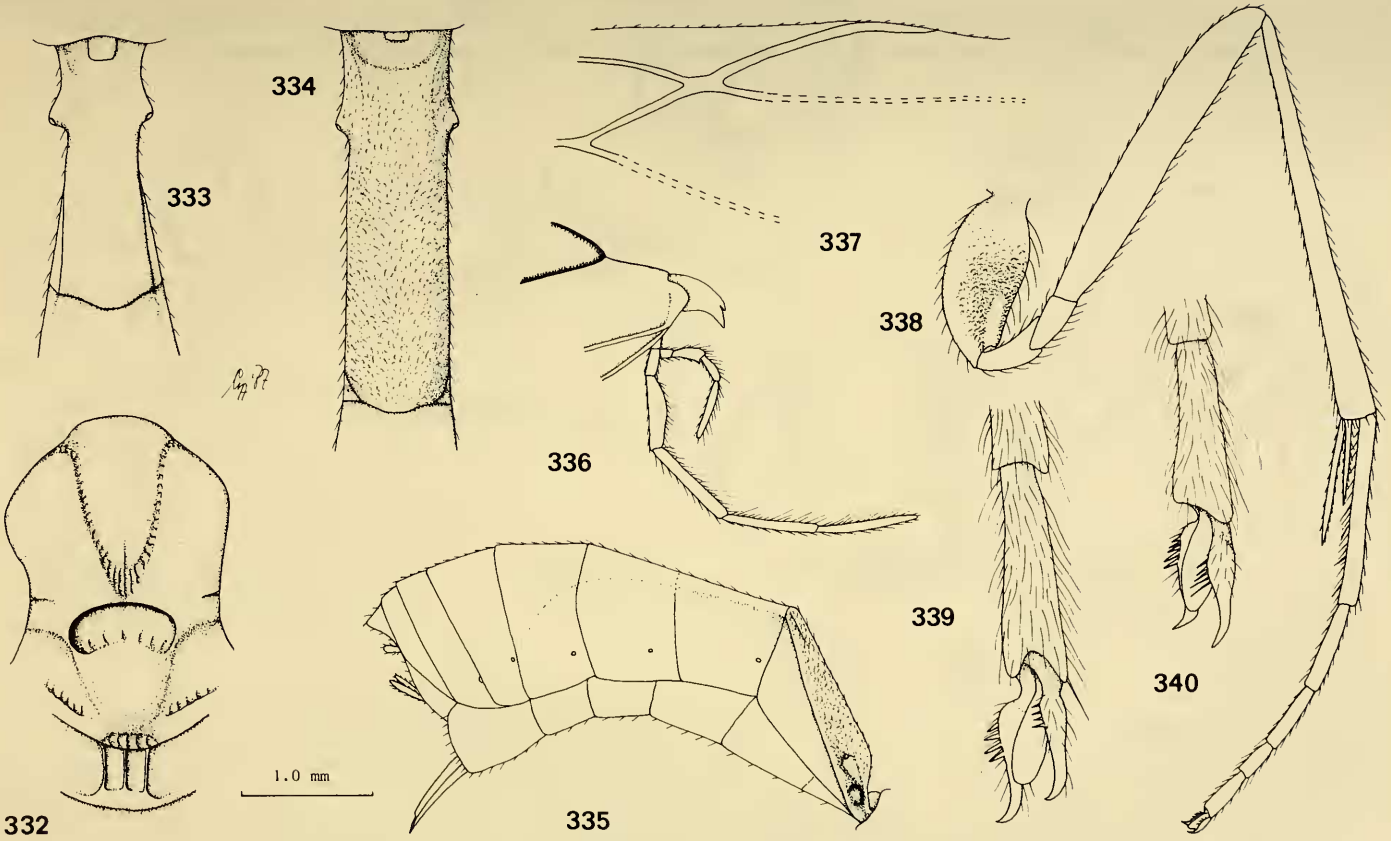
Figs. 302—314, *Homolobus (Apatia) truncatoides* spec. nov., holotype, but 308 and 310 of ♂ paratype from Spain, Almunecas. 302, habitus, lateral aspect; 303, detail of ovipositor sheath in undistorted position, lateral aspect; 304, detail of vein 1A + 2A of fore wing; 305, apex of antenna; 306, wings; 307, detail of veins SC + R1 and SR of hind wing; 308, hind tibial spurs of ♂, lateral aspect; 309, palpi; 310, hind tibial spurs of ♂, ventral aspect; 311, head, frontal aspect; 312, head, dorsal aspect; 313, inner hind claw; 314, outer hind claw. 302, 306: scale-line, 1 ×; 303: 2.5 ×; 304, 307—311: 1.8 ×); 305, 313, 314: 3.6 ×; 312: 1.5 ×



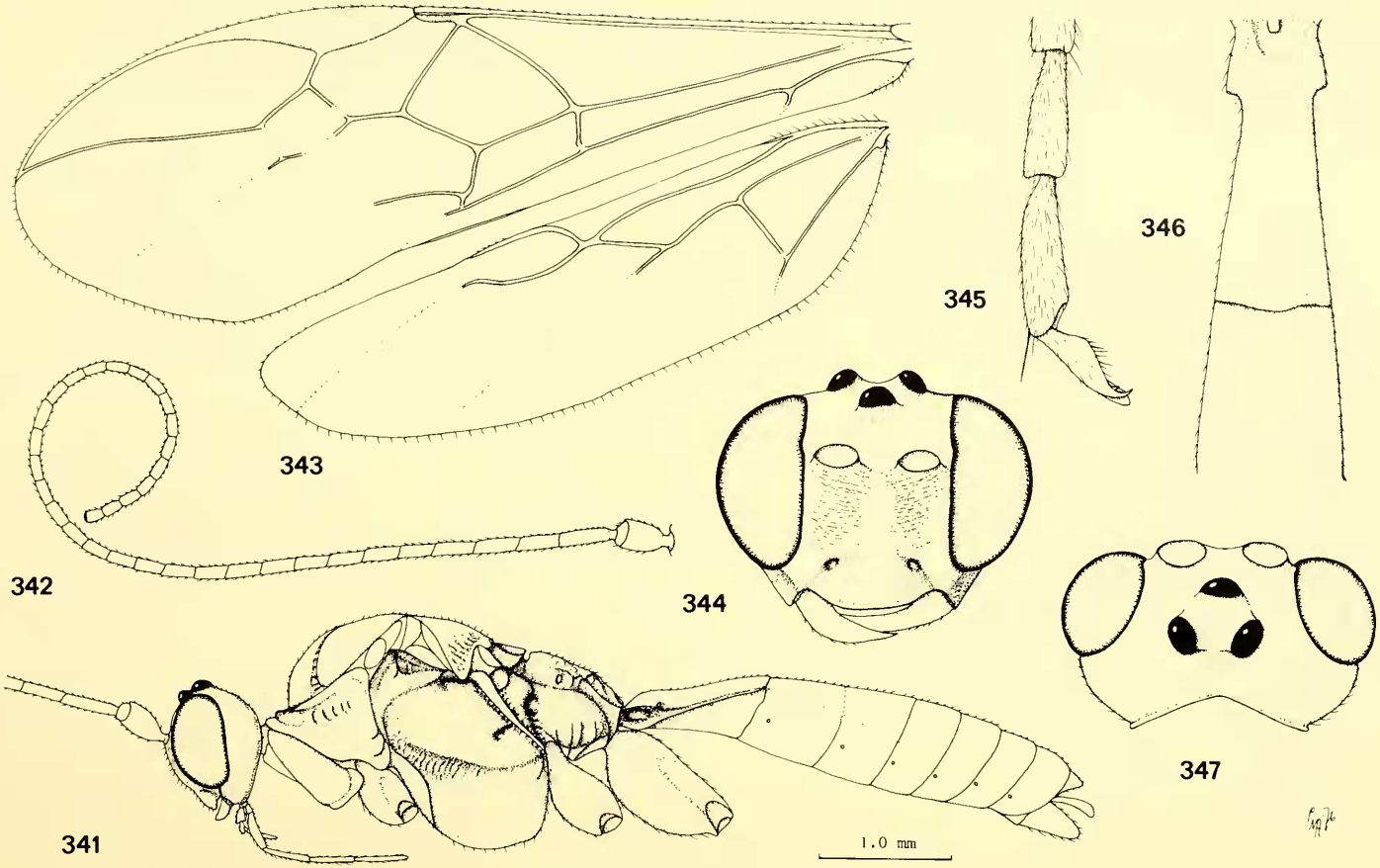
Figs. 315—318, *Homolobus (Phylacter) annulicornis* (Nees), neotype, but 317 of ♀ from Denmark, Klaekket. 315, 1st tergite, dorsal aspect; 316, mesonotum, dorsal aspect; 317, hind tibial spurs of ♀, lateral aspect; 318, hind leg. Figs. 319, 320, *Homolobus (Apatia) rufithorax* (Granger), lectotype. 319, hind leg: 320, 1st tergite, dorsal aspect. Figs. 321—323, *Homolobus (Phylacter) meridionalis* spec. nov., holotype. 321, head, dorsal aspect; 322, hind leg; 323, mesonotum, dorsal aspect. Figs. 324—326, *Homolobus (Apatia) truncatoides* spec. nov., holotype. 324, hind leg; 325, mesonotum, dorsal aspect; 326, 1st—3rd tergites, dorsal aspect. 315, 316, 320, 321, 323: 2.0 ×; 317—319, 322: scale-line, 1 ×; 324: 1.7 ×; 325, 326: 2.5 ×



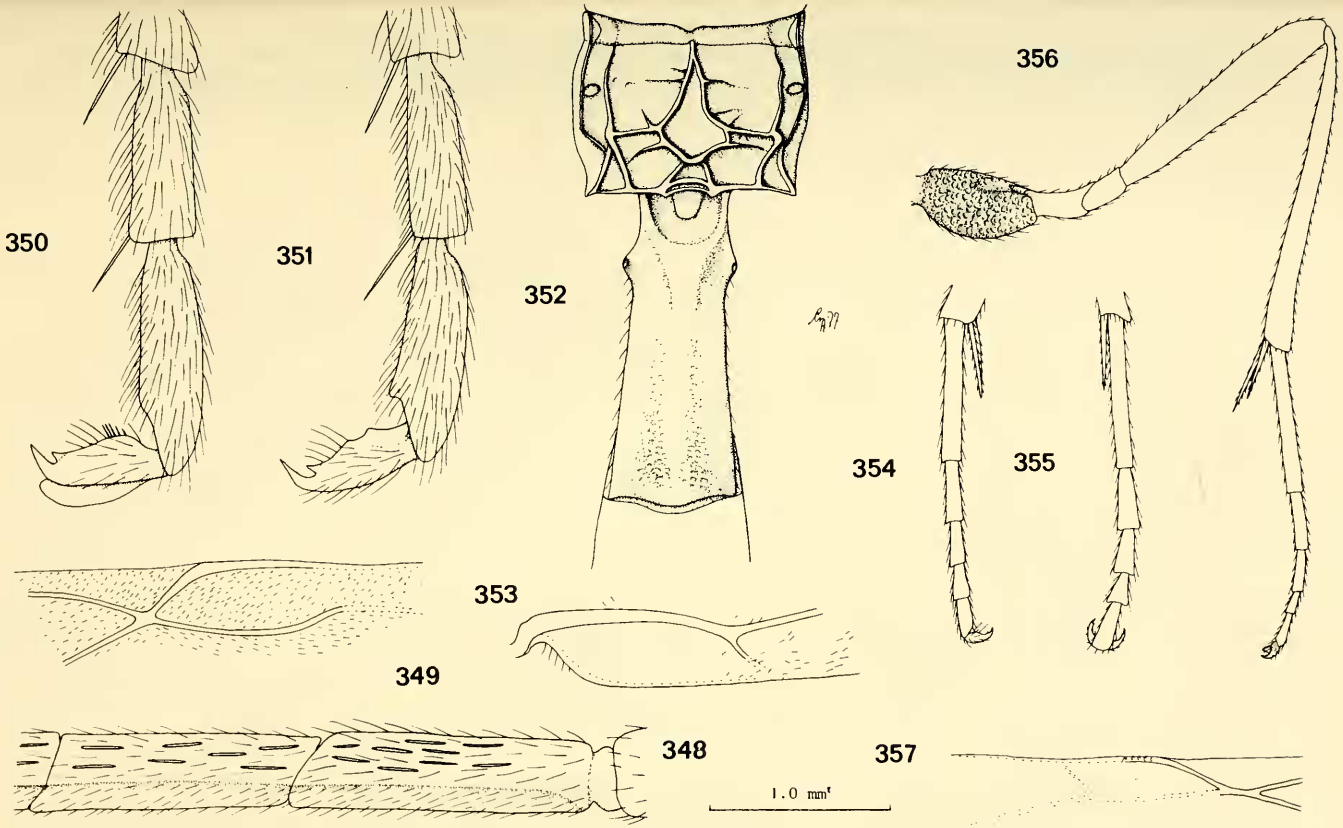
Figs. 327-331, *Homolobus (Apatia) pallidistigmus* (Cameron), holotype. 327, habitus (except metasoma), lateral aspect; 328, head, dorsal aspect; 329, wings; 330, head, frontal aspect; 331, head, dorsal aspect. 327, 329: scale-line, 1 ×; 328, 330: 1.9 ×; 331: 1.3 ×



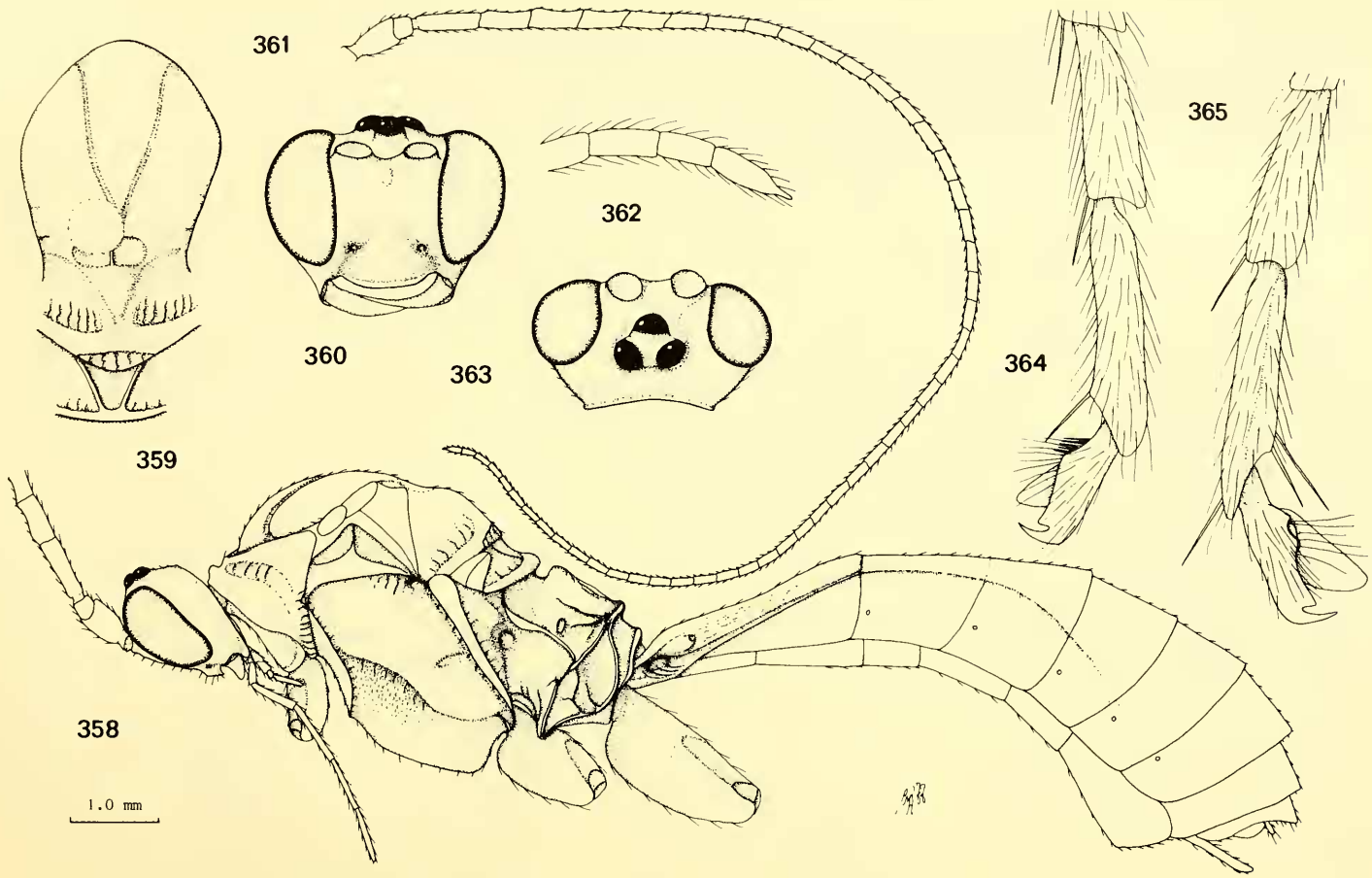
Figs. 332, 333, *Homolobus (Apatia) elagabalus* (Nixon), holotype. 332, mesonotum, dorsal aspect; 333, 1st tergite, dorsal aspect. Figs. 334—340, *Homolobus (Apatia) pallidistigmus* (Cameron), ♀, Zaire, Rutshuru. 334, 1st tergite, dorsal aspect; 335, metasoma, lateral aspect; 336, palpi; 337, detail of veins SC + R1 and SR of hind wing; 338, hind leg; 339, full sight on outer hind claw; 340, full sight on outer fore claw. 332—334, 336, 337: 2.0 ×; 335, 338: scale-line, 1 ×; 339, 340: 4.0 ×



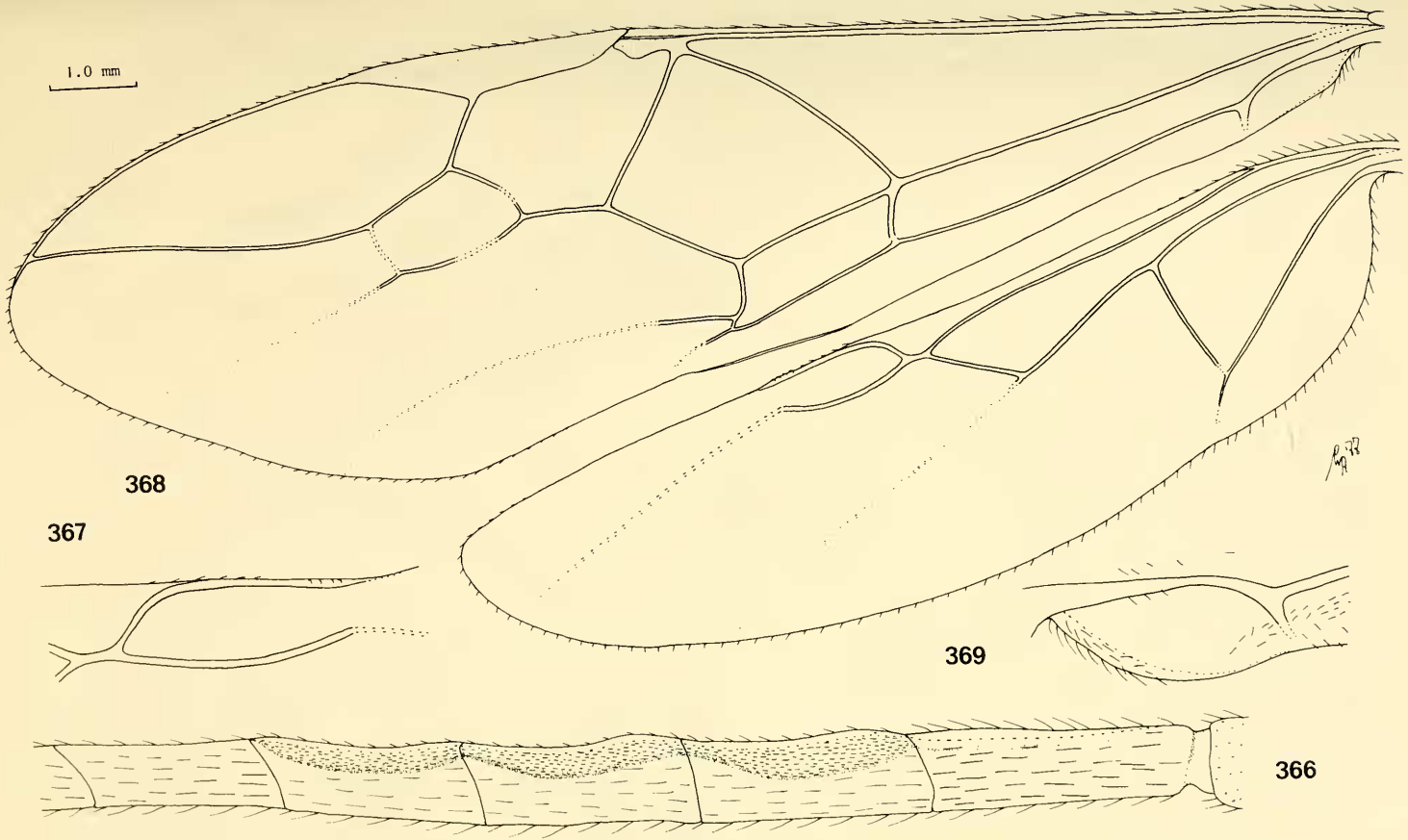
Figs. 341—347, *Homolobus (Chartolobus) wesmaeli* (Bengtsson), lectotype. 341, habitus, lateral aspect; 342, antenna; 343, wings; 344, head, frontal aspect; 345, inner fore claw; 346, 1st and 2nd tergites, dorsal aspect; 347, head, dorsal aspect. 341—343: scale-line, 1 ×; 344, 346, 347: 2.0 ×; 345: 5.0 ×



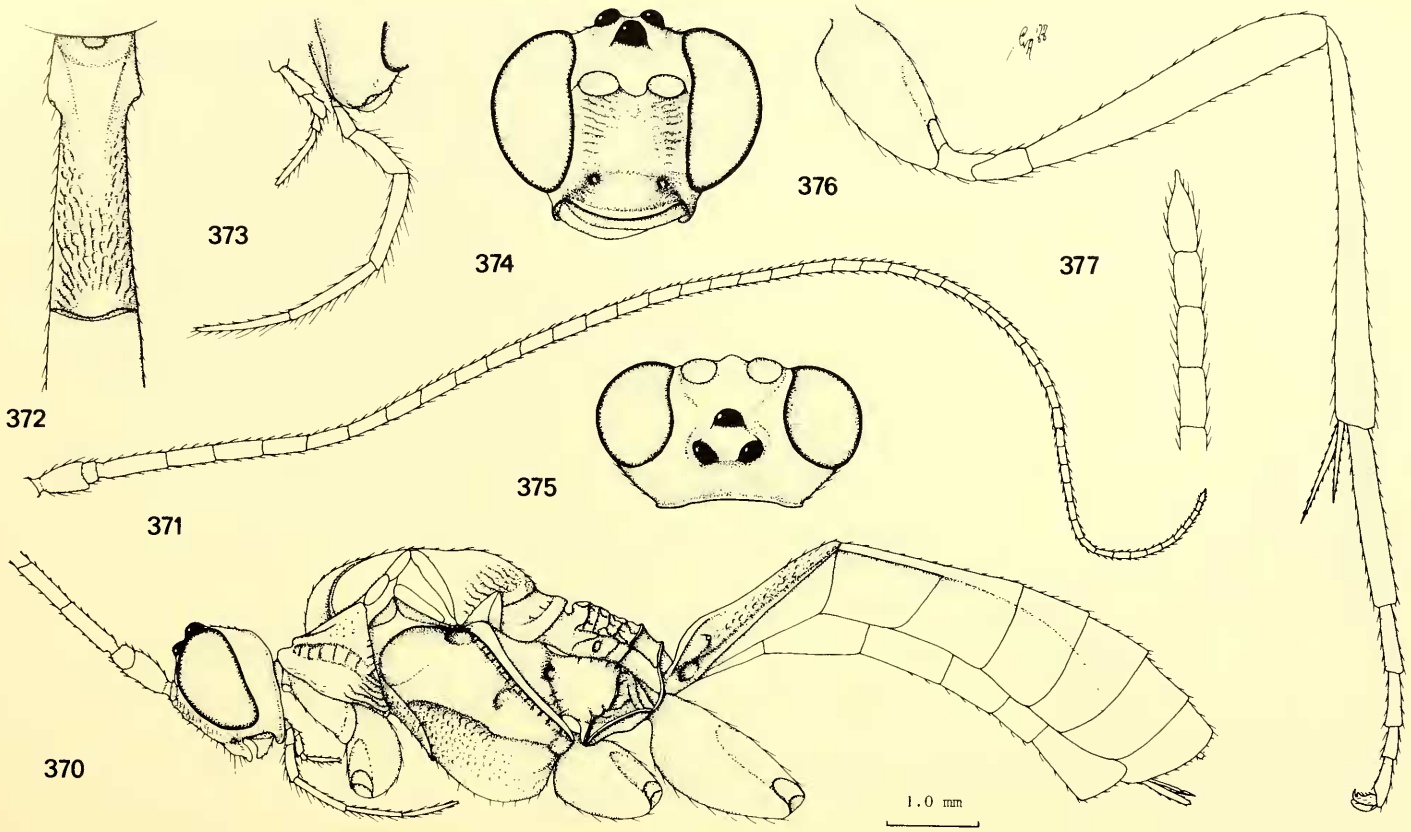
Figs. 348—353, *Homolobus (Chartolobus) infumator* (Lyle), 348, 350 and 351 of ♀ from W. Germany, Reither Alm, 349, 352, 353 of lectotype. 348, inner aspect of 3rd and 4th antennal segments; 349, detail of veins SC + R1 and SR of hind wing; 350, outer hind claw; 351, inner hind claw; 352, propodeum and 1st tergite, dorsal aspect; 353, detail of vein 1A + 2A of fore wing. Figs. 354—357, *Homolobus (Oulophus) bohemani* (Bengtsson), 356, holotype, 354, 355, 357 of ♀ from Finland, Parikkala. 354, middle tarsus, lateral aspect; 355, middle tarsus, dorsal aspect; 356, hind leg; 357, detail of veins SC + R1 and SR of hind wing. 348, 350, 351: 3.5 × scale-line; 349, 353, 355, 357: 2.0 × scale-line; 352: 2.0 × scale-line; 356: 0.5 × scale-line



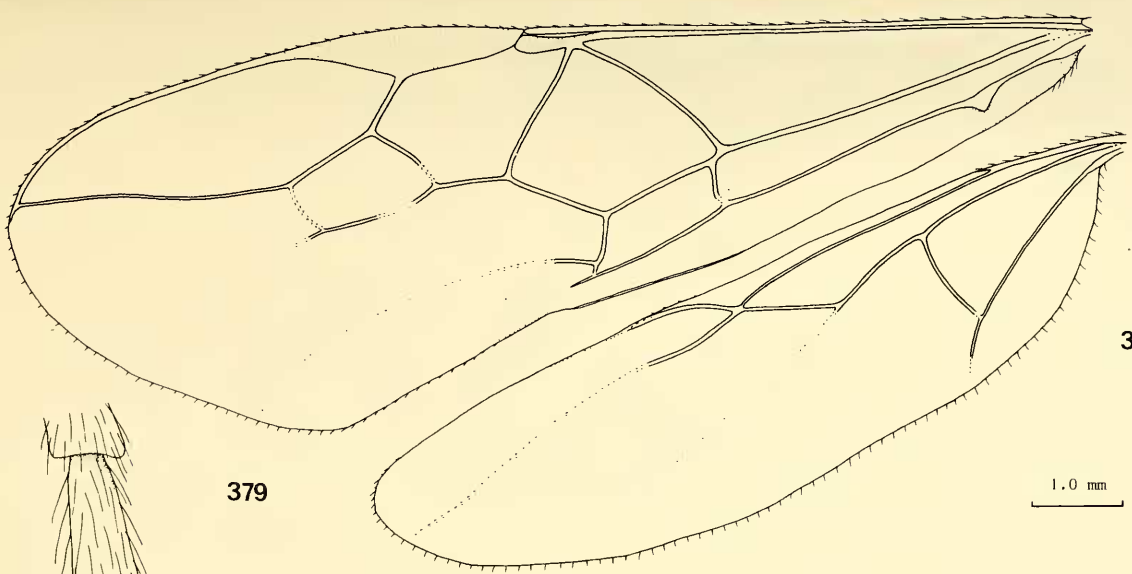
Figs. 358—365, *Homolobus (Chartolobus) undulatus* spec. nov., holotype. 358, habitus, lateral aspect; 359, mesonotum, dorsal aspect; 360, head, frontal aspect; 361, antenna; 362, apex of antenna; 363, head, dorsal aspect; 364, outer hind claw; 365, inner hind claw. 358, 361: scale-line, 1 ×; 359, 360, 363: 1.4 ×; 362, 364, 365: 5.0 ×

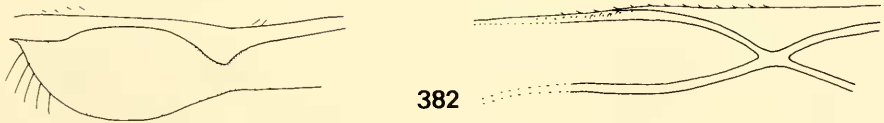


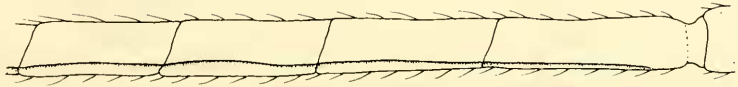
Figs. 366—369, *Homolobus (Chartolobus) undulatus* spec. nov., holotype. 366, 3rd—7th antennal segments, inner aspect; 367, detail of veins SC + R1 and SR of hind wing; 368, wings; 369, detail of vein 1A + 2A and 2A. 366: 5.0 ×; 367, 369: 2.0 ×; 368: scale-line, 1 ×

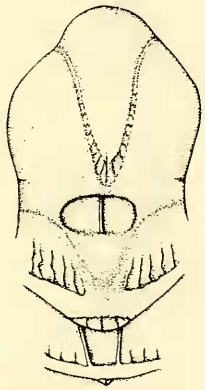


Figs. 370—377, *Homolobus (Chartolobus) nigritarsis* spec. nov., holotype. 370, habitus, lateral aspect; 371, antenna; 372, 1st tergite, dorsal aspect; 373, palpi; 374, head, frontal aspect; 375, head, dorsal aspect; 376, hind leg; 377, apex of antenna. 370, 371, 376: scale-line, 1 ×; 372, 374, 375: 1.3 ×; 373: 2.0 ×; 377: 5.0 ×

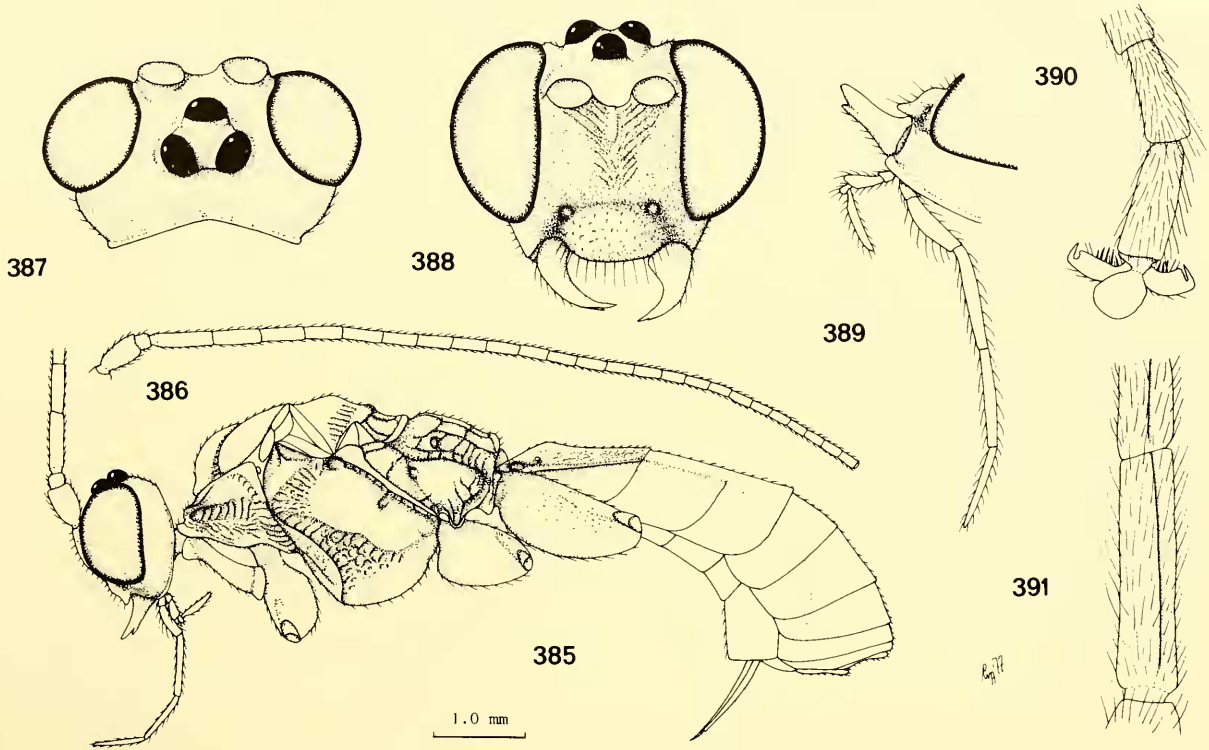




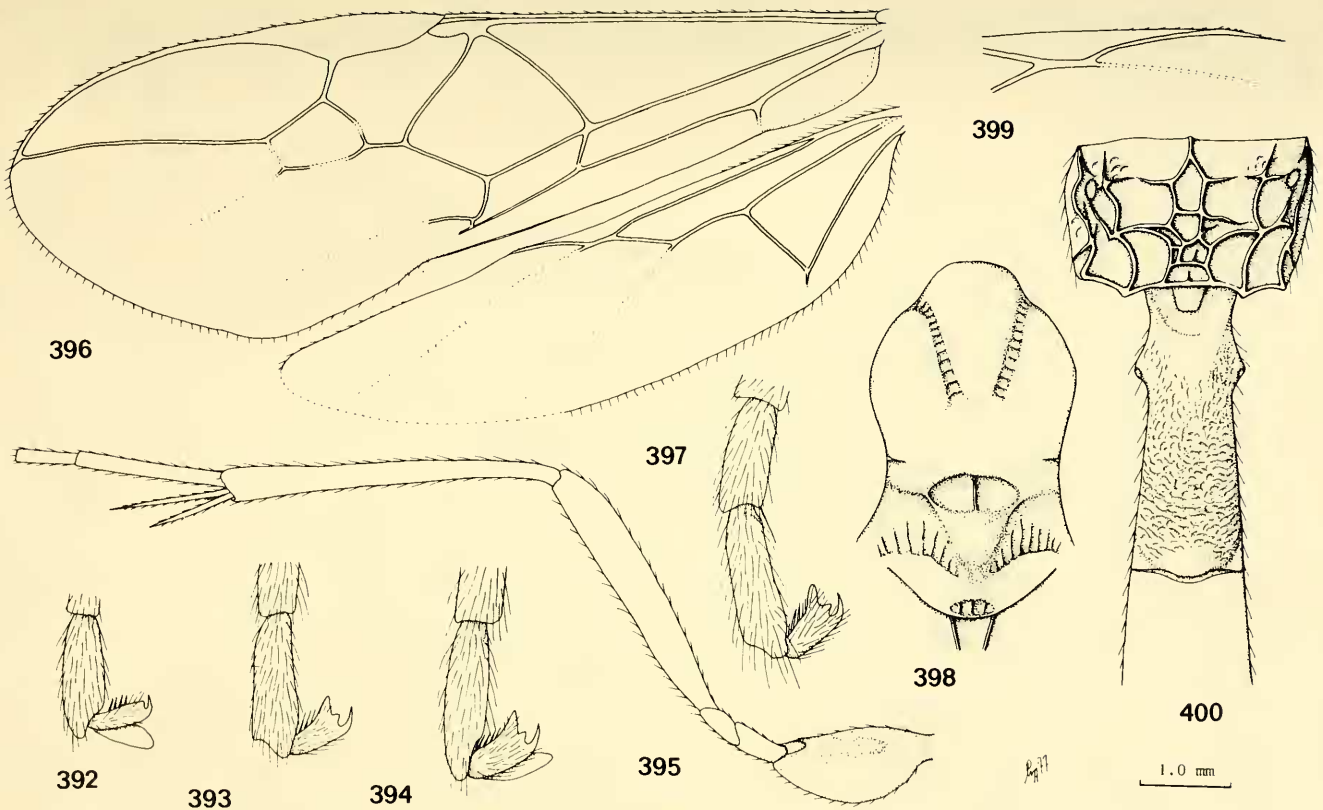




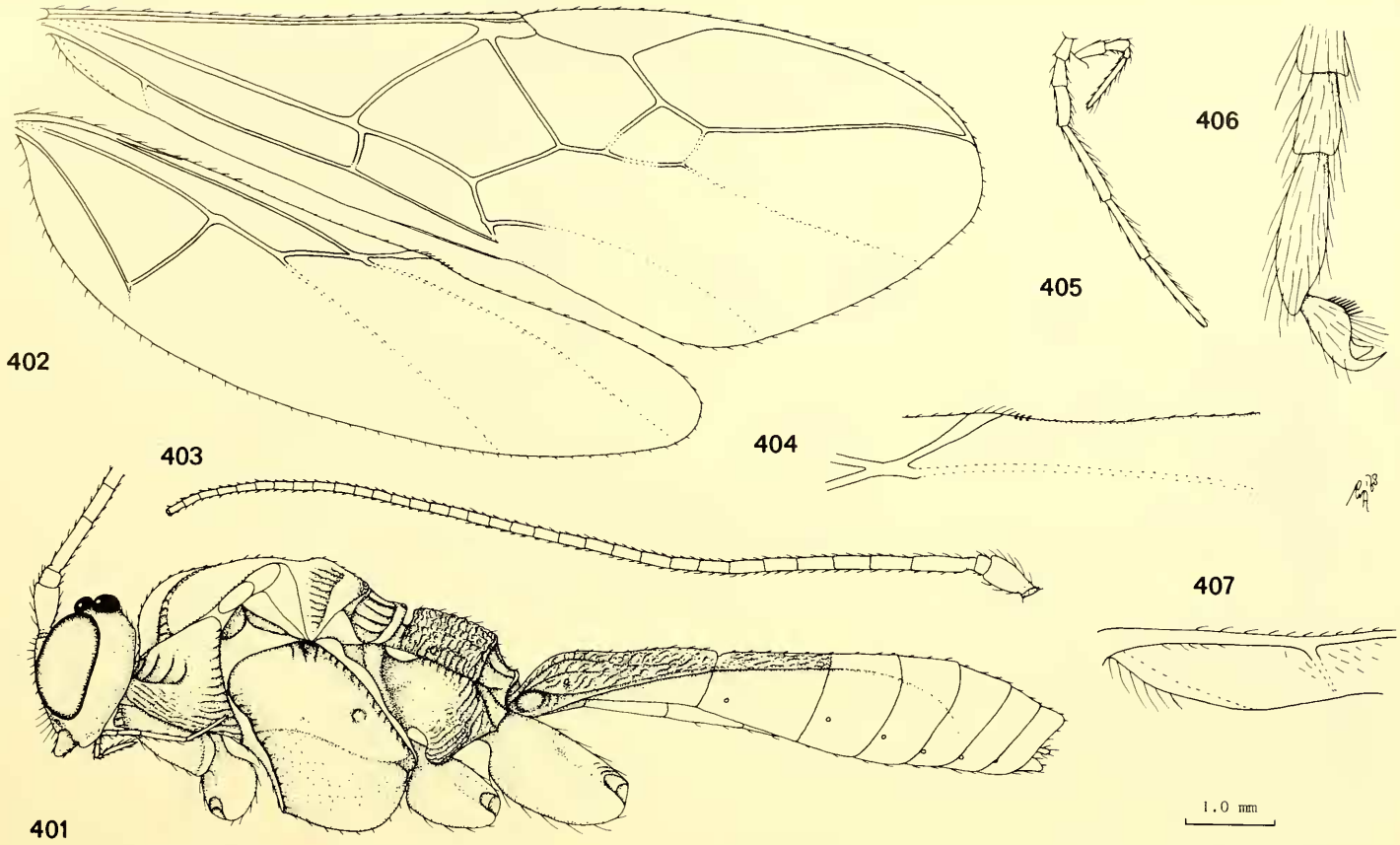
Figs. 378—384, *Homolobus (Chartolobus) nigritarsis* spec. nov., holotype. 378, outer hind claw; 379, wings; 380, detail of veins 1A + 2A and 2A of fore wing; 381, 3rd-6th antennal segments, inner aspect; 382, detail of veins SC + R1 and SR of hind wing; 383, inner hind claw; 384, mesonotum, dorsal aspect. 378, 383: 5.0 ×; 379: scale-line, 1 ×; 380, 382: 2.0 ×; 381: 3.0 ×



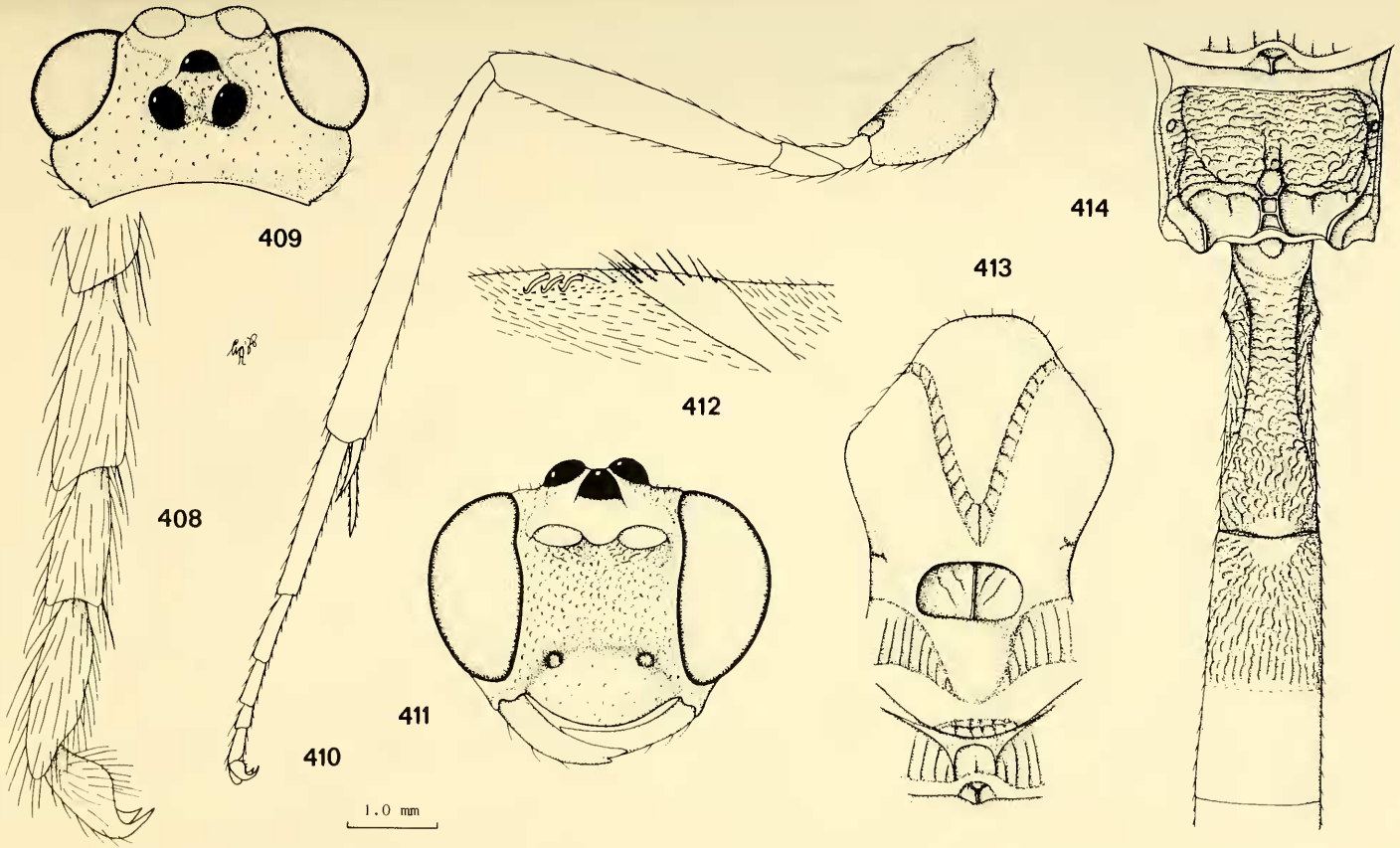
Figs. 385—391, *Homolobus (Homolobus) simplex* (Watanabe), holotype. 385, habitus, lateral aspect; 386, antenna; 387, head, dorsal aspect; 388, head, frontal aspect; 389, palpi; 390, middle claws, full sight on outer claw; 391, 3rd antennal segment, inner aspect. 385, 386: scale-line 1 ×; 387—389: 2.0 ×; 390, 391: 5.0 ×



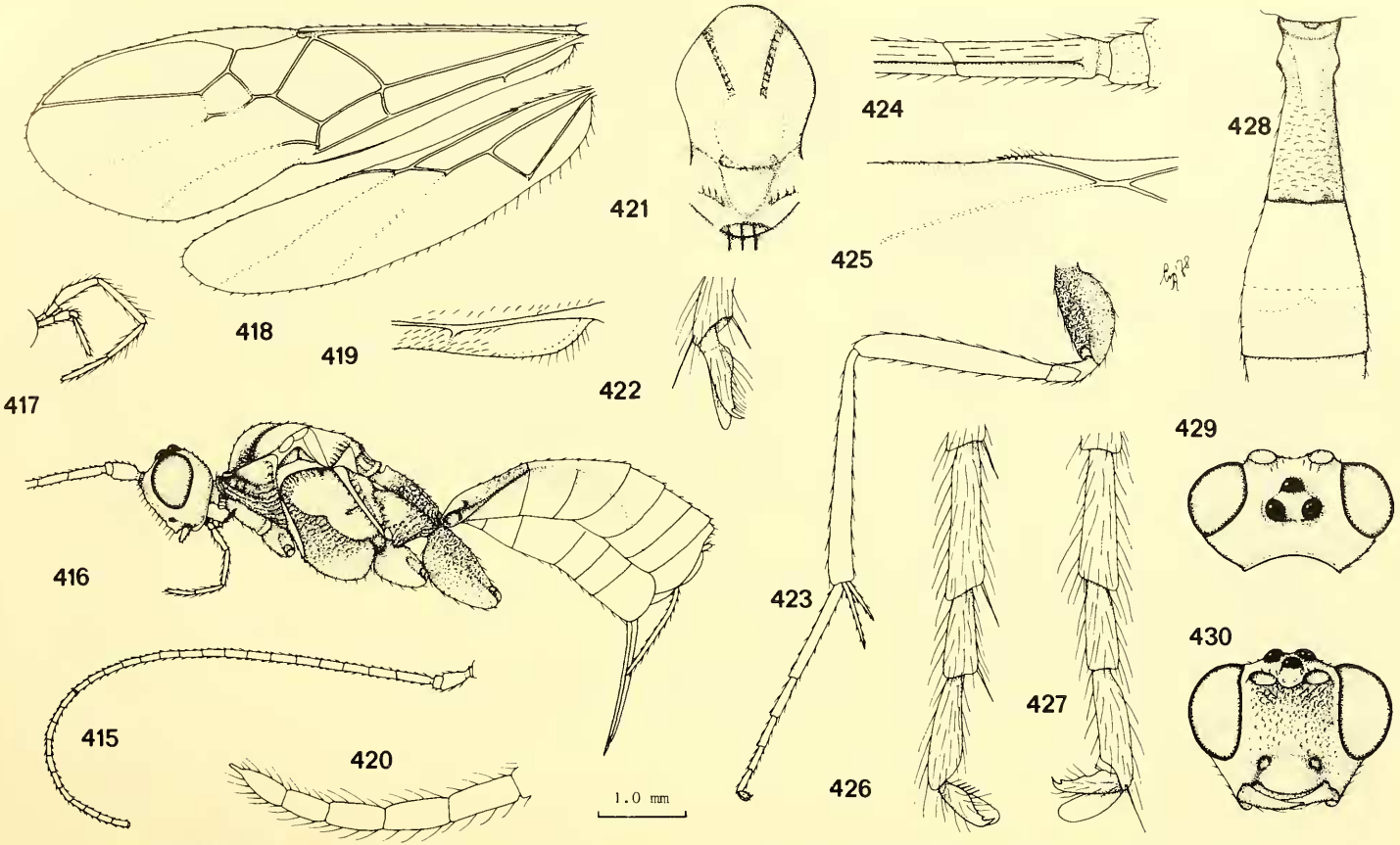
Figs. 392—400, *Homolobus (Homolobus) simplex* (Watanabe), holotype, but 392—394 and 397 of ♂, Japan, Hokkaido. 392, inner fore claw; 393, inner middle claw; 394, inner hind claw; 395, hind leg; 396, wings; 397, outer hind claw; 398, mesonotum, dorsal aspect; 399, detail of veins 1A + 2A and SR; 400, propodeum and 1st tergite, dorsal aspect. 392—394, 397: 5.0 ×; 395, 396: scale-line, 1 ×; 398—400: 2.0 ×



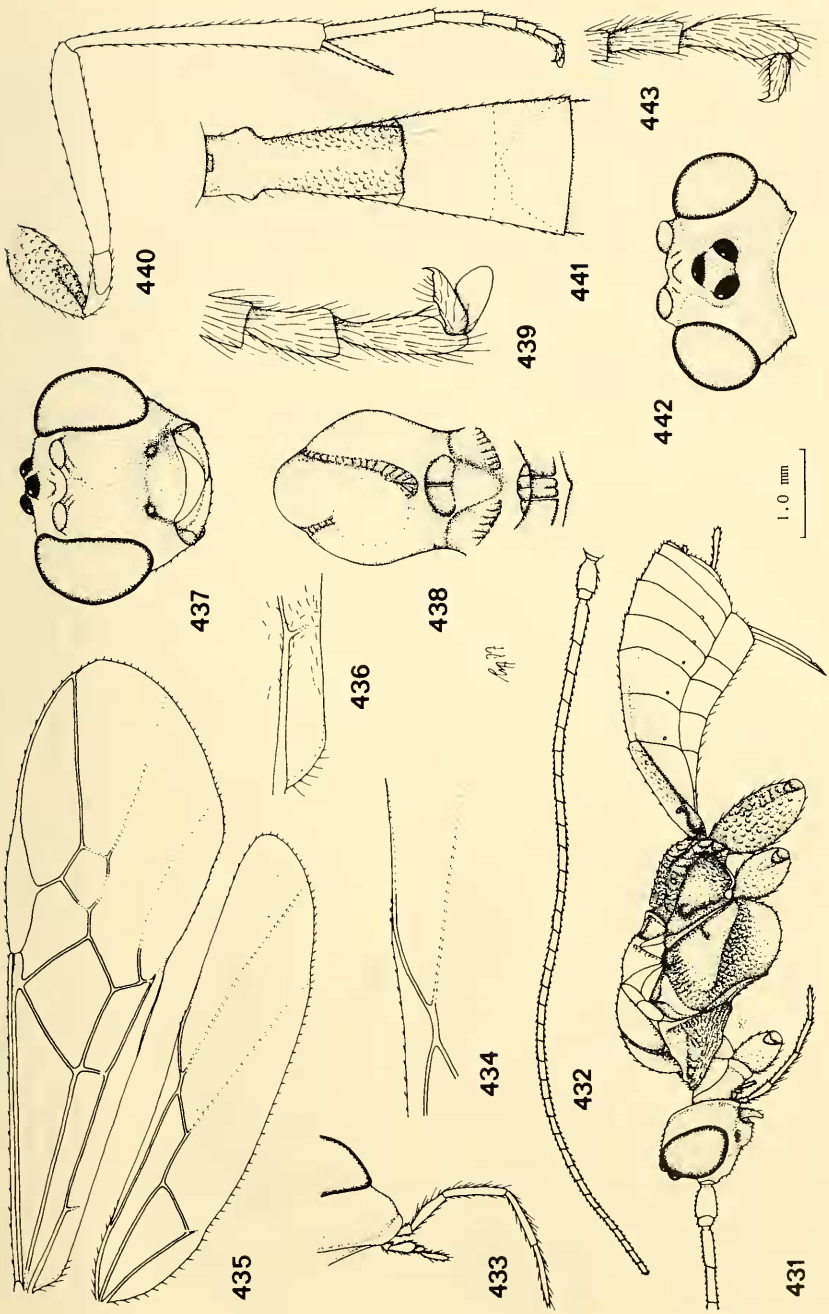
Figs. 401—407, *Homolobus (Homolobus) rugosus* spec. nov., holotype. 401, habitus, lateral aspect; 402, wings; 403, antenna; 404, detail of veins SC + R1 and SR of hind wing; 405, palpi; 406, inner fore claw; 407, detail of vein 1A + 2A of fore wing. 401—403: scale-line, 1 ×; 404, 405, 407: 2.0 ×; 406: 5.0 ×



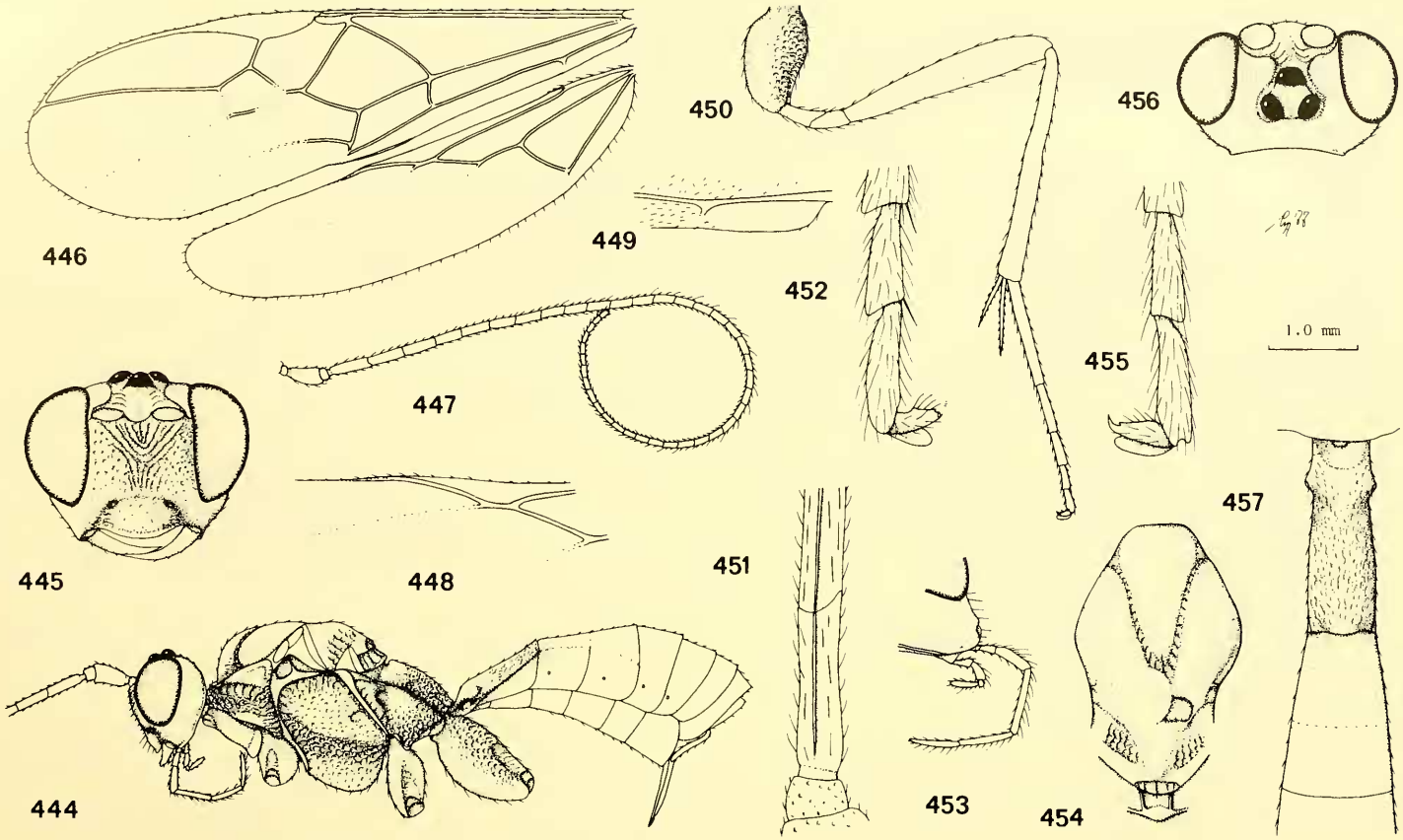
Figs. 408—414, *Homolobus (Homolobus) rugosus* spec. nov., holotype. 408, inner hind claw; 409, head, dorsal aspect; 410, hind leg; 411, head, frontal aspect; 412, detail of hamuli and vein SC + R1 of hind wing; 413, mesonotum, dorsal aspect; 414, propodeum and 1st—3rd tergites, dorsal aspect. 408, 412: 5.0 ×; 409, 411, 413: 2.0 ×; 414: 1.4 ×; 410: scale-line, 1 ×



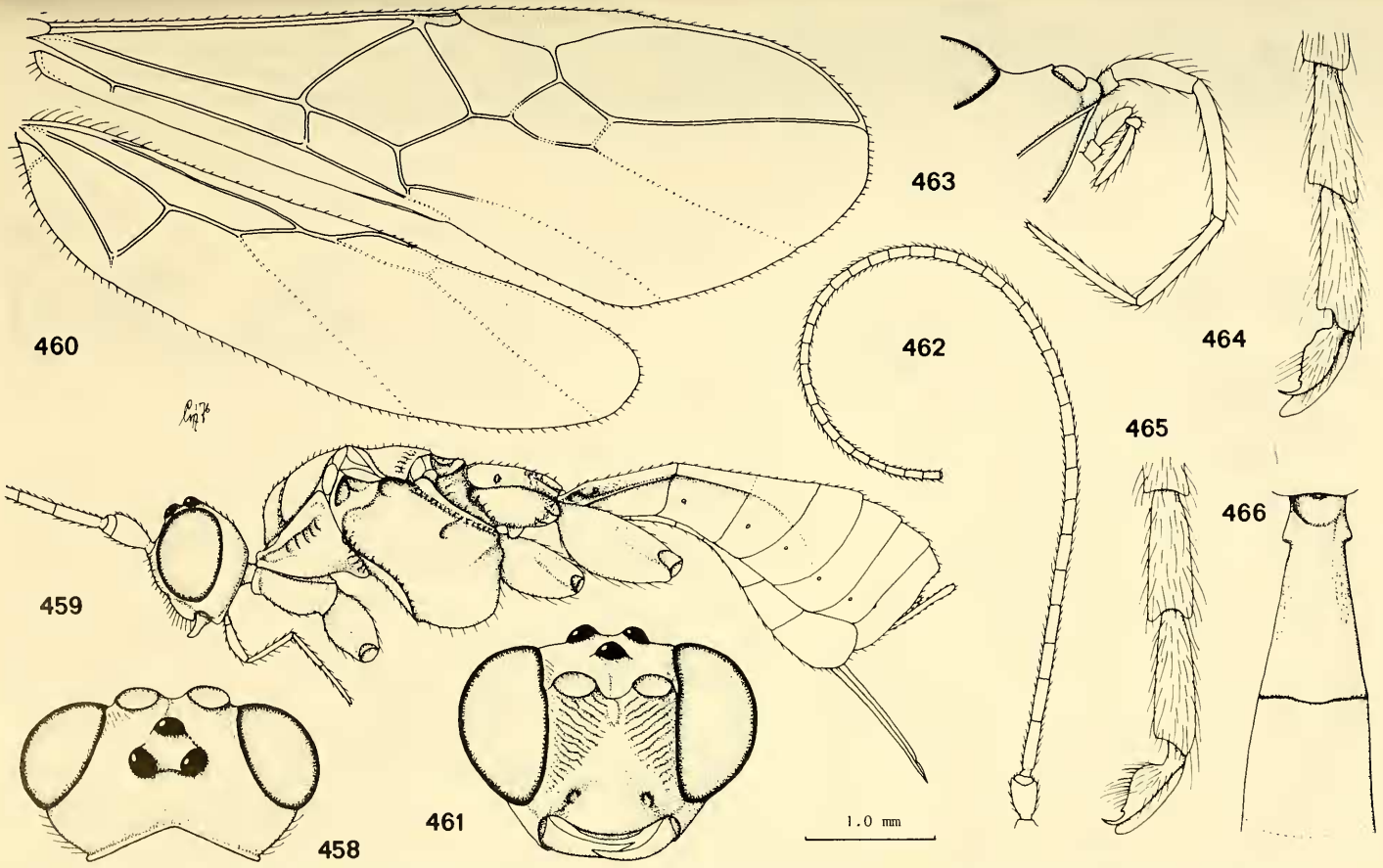
Figs. 415—430, *Homolobus (Homolobus) cingulatus* (Granger), lectotype, but 420 after ♀ from Andranotobaka and 422 after ♂ from Ampitameloka. 415, antenna; 416, habitus, lateral aspect; 417, palpi; 418, wings; 419, detail of vein 1A + 2A of fore wing; 420, apex of antenna; 421, mesonotum, dorsal aspect; 422, inner hind claw of ♂; 423, hind leg; 424, detail of 3rd antennal segment, inner aspect; 425, detail of veins SC + R1 and SR of hind wing; 426, outer hind claw; 427, inner hind claw; 428, 1st—3rd tergites, dorsal aspect; 429, head, dorsal aspect; 430, head, frontal aspect. 415, 416, 418, 423: scale-line, 1 ×; 417, 419, 421, 425, 428—430: 2.0 ×; 420: 6.2 ×; 422, 424, 426, 427: 5.0 ×



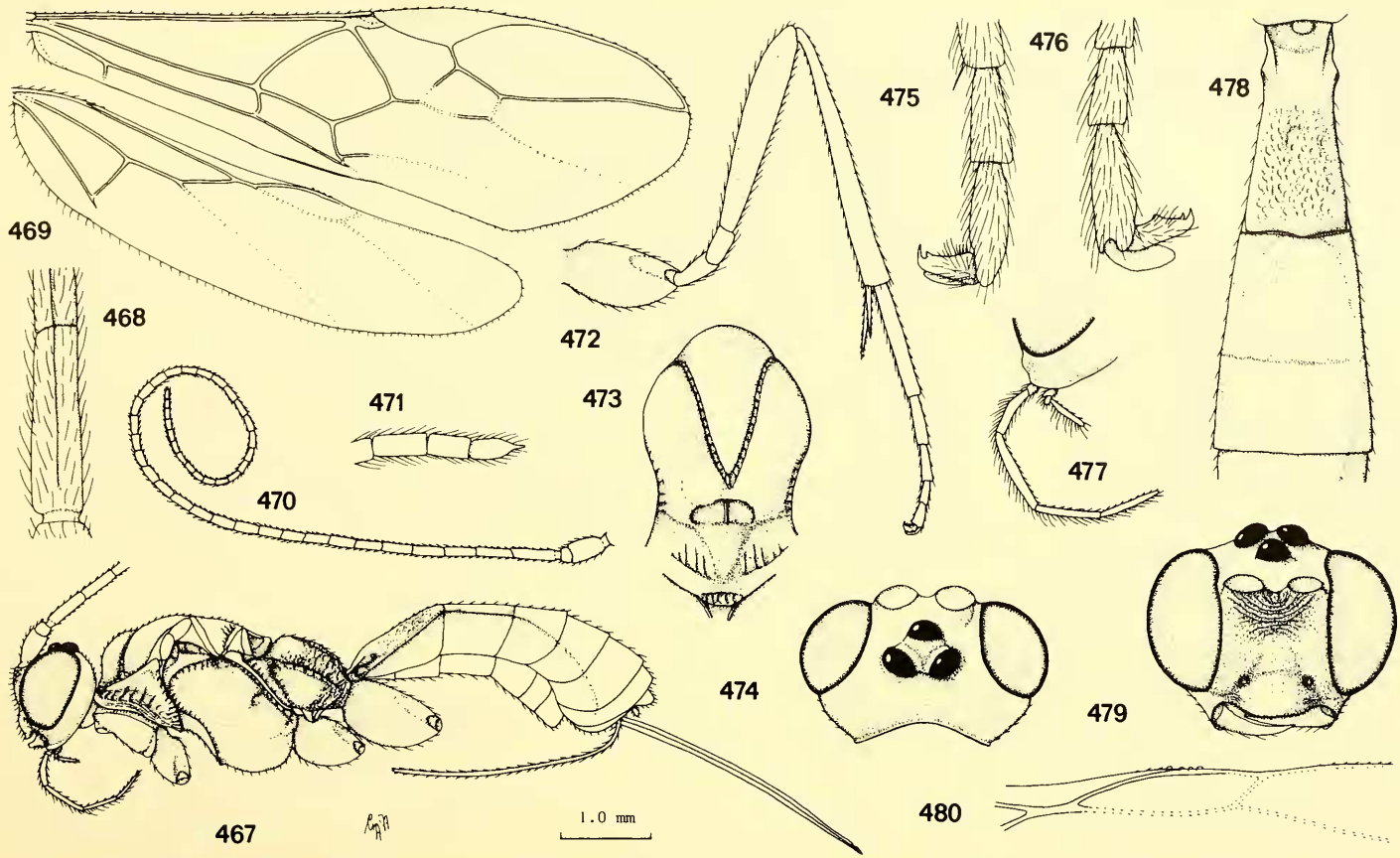
Figs. 431—443, *Homolobus* (*Homolobus*) *inopinus* spec. nov., holotype. 431, habitus, lateral aspect; 432, antenna; 433, palpi; 434, detail of veins SC + R1 and SR of hind wing; 435, wings; 436, detail of veins 1A + 2A and 2A of fore wing; 437: head, frontal aspect; 438: mesonotum, dorsal aspect; 439, inner hind claw; 440, hind leg; 441, 1st—3rd tergites, dorsal aspect; 442, head, dorsal aspect; 443, inner middle claw. 431, 432, 435, 440: scale-line, 1 ×; 433, 434, 436—438, 441, 442: 2.0 ×; 439, 443: 5.0 ×



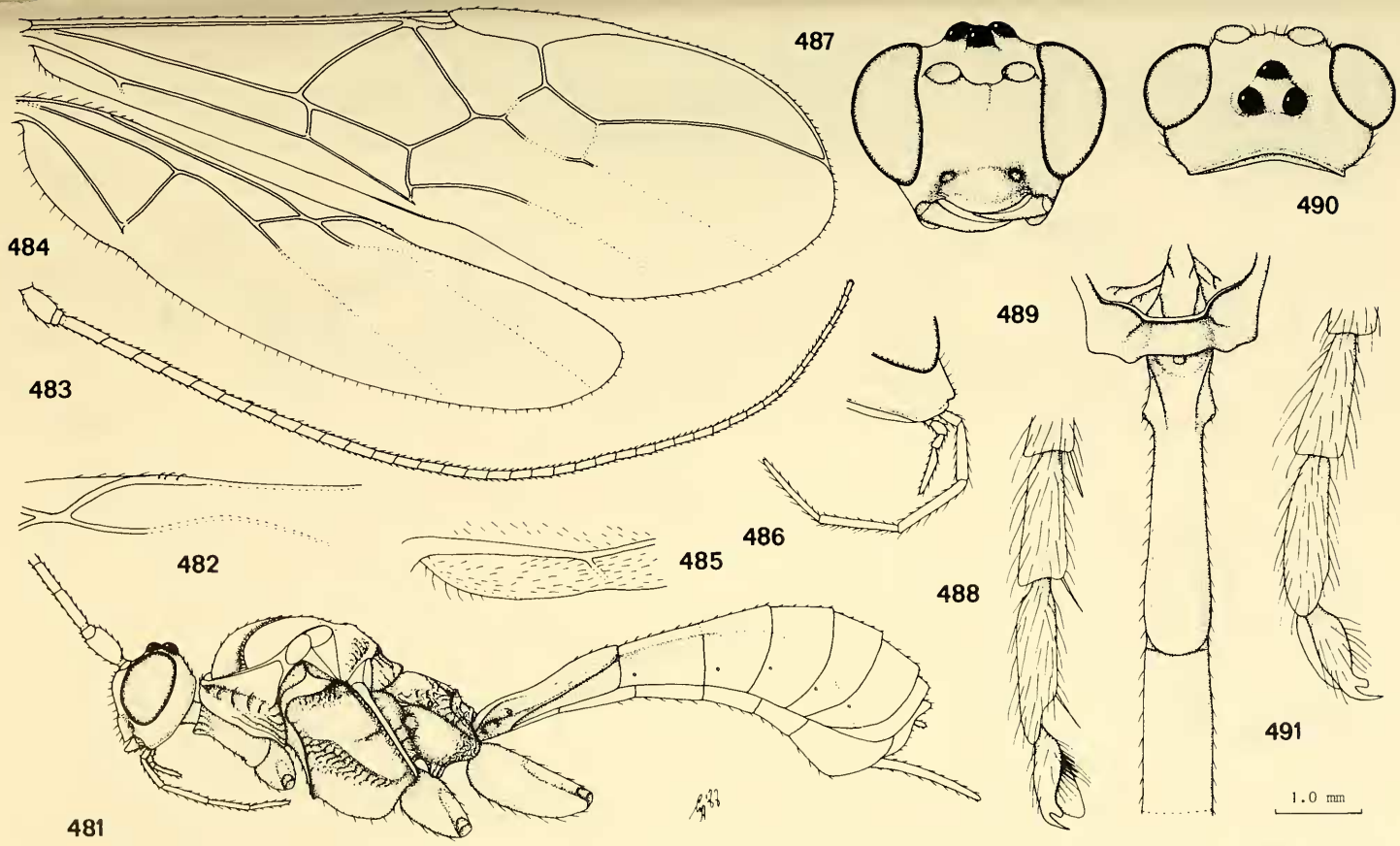
Figs. 444—457, *Homolobus (Homolobus) ethiopicus* spec. nov., holotype. 444, habitus, lateral aspect; 445, head, frontal aspect; 446, wings; 447, antenna; 448, detail of veins SC + R1 and SR of hind wing; 449, detail of veins 1A + 2A and 2A of fore wing; 450, hind leg; 451, 2nd-4th antennal segments, inner aspect; 452, inner hind claw; 453, palpi; 454, mesonotum, dorsal aspect; 455, outer; hind claw; 456, head, dorsal aspect; 457, 1st—3rd tergites, dorsal aspect. 444, 446, 450: scale-line, 1 ×; 445, 448, 449, 453, 454, 456, 457: 2.0 ×; 451, 452, 455: 5.0 ×



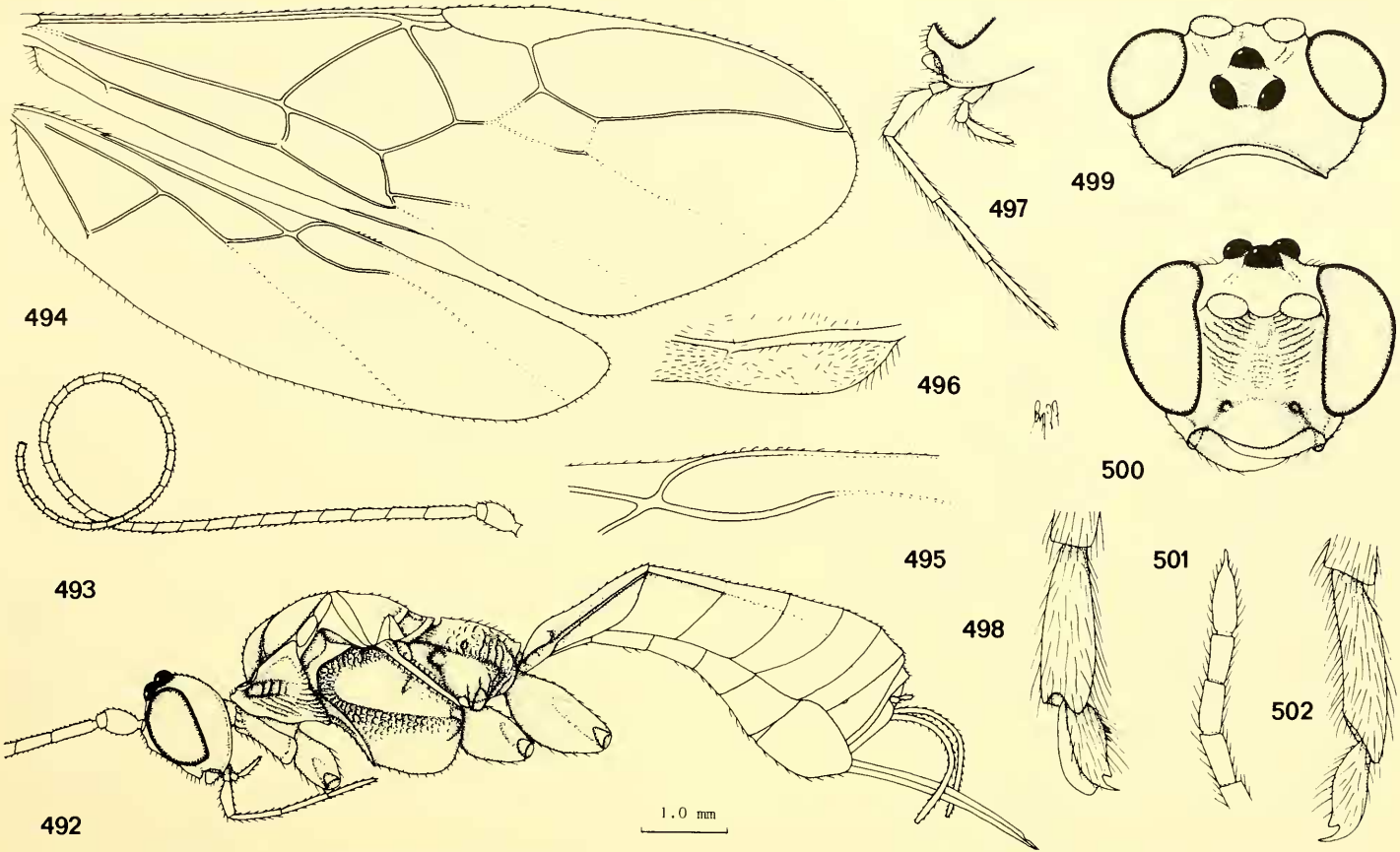
Figs. 458—466, *Homolobus (Homolobus) discolor* (Wesmael), lectotype. 458, head, dorsal aspect; 459, habitus, lateral aspect; 460, wings; 461, head, frontal aspect; 462, antenna; 463, palpi; 464, outer hind claw; 465, inner hind claw; 466, 1st and 2nd tergites, dorsal aspect. 458, 461, 466: 2.0 ×; 459, 460, 462: scale-line, 1 ×; 463: 3.0 ×; 464, 465: 4.3 ×



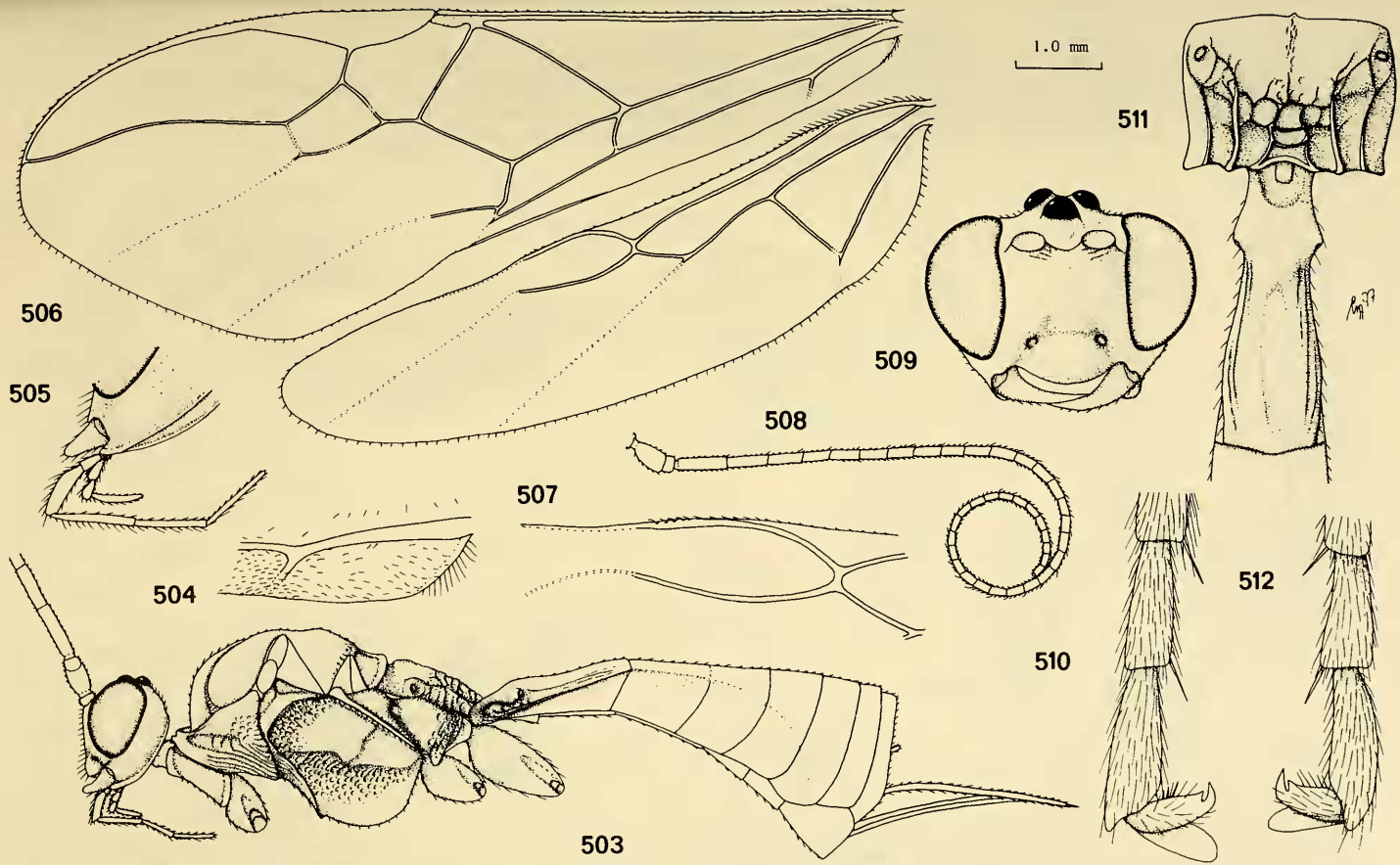
Figs. 467—480, *Homolobus (Homolobus) dauricus* Shestakov, holotype. 467, habitus, lateral aspect; 468, 3rd antennal segment, inner aspect; 469, wings; 470, antenna; 471, apex of antenna; 472, hind leg; 473, mesonotum, dorsal aspect; 474, head, dorsal aspect; 475, outer hind claw; 476, inner hind claw; 477, palpi; 478, 1st—3rd tergites, dorsal aspect; 479, head, frontal aspect; 480, detail of veins SC + R1 and SR of hind wing. 467, 469, 470, 472: scale-line, 1 ×; 468, 471, 475, 476: 5.0 ×; 473, 474, 477—480: 2.0 ×



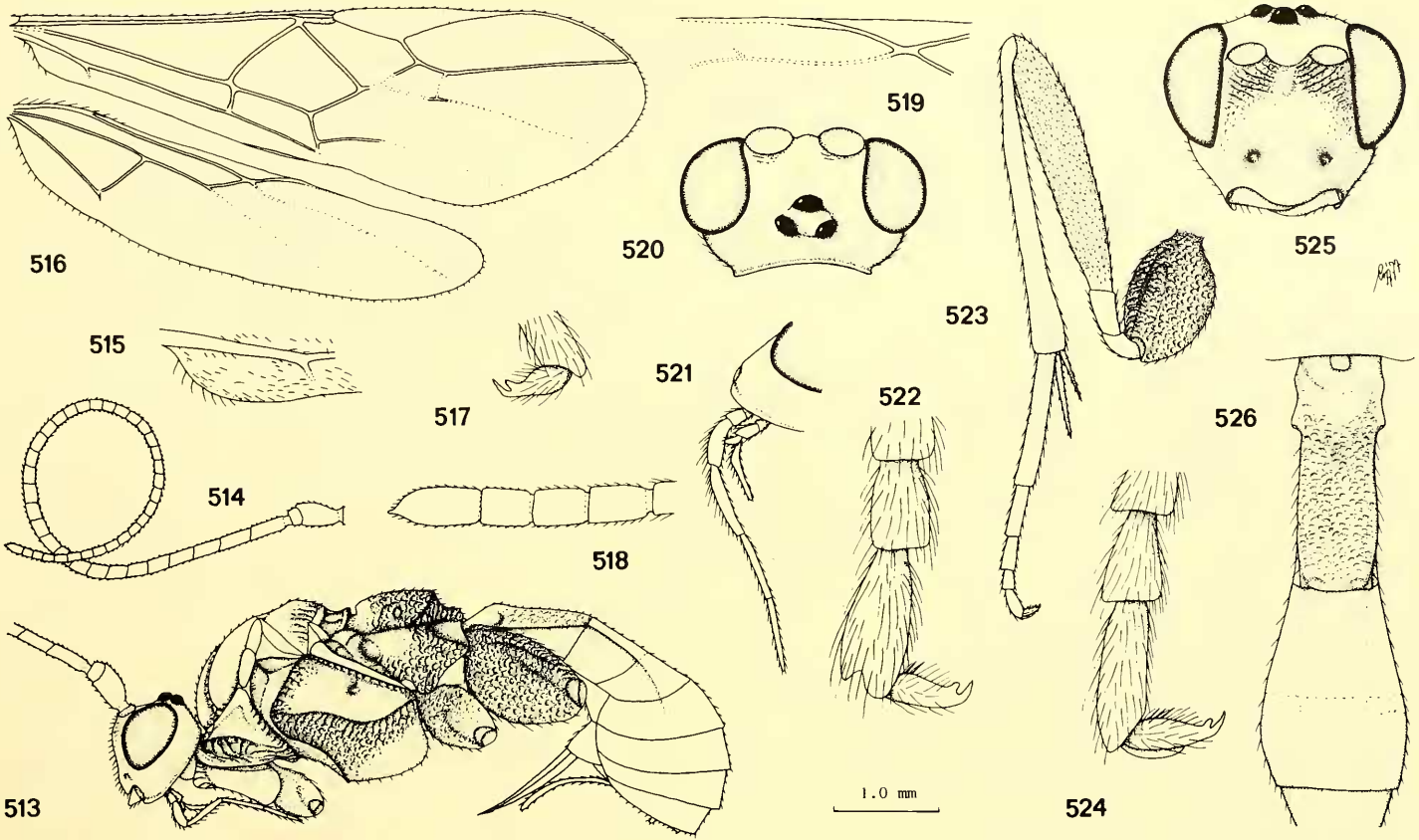
Figs. 481—491, *Homolobus (Phylacter) bifurcatus* spec. nov., holotype. 481, habitus, lateral aspect; 482, detail of veins SC + R1 and SR of hind wing; 483, antenna; 484, wings; 485, detail of veins 1A + 2A and 2A of fore wing; 486, palpi; 487, head, frontal aspect; 488, outer hind claw; 489, 1st and 2nd tergites, dorsal aspect; 490, head, dorsal aspect; 491, inner hind claw. 481, 483, 484: scale-line, 1 ×; 482, 485, 487, 489, 490: 2.0 ×; 488, 491: 5.0 ×



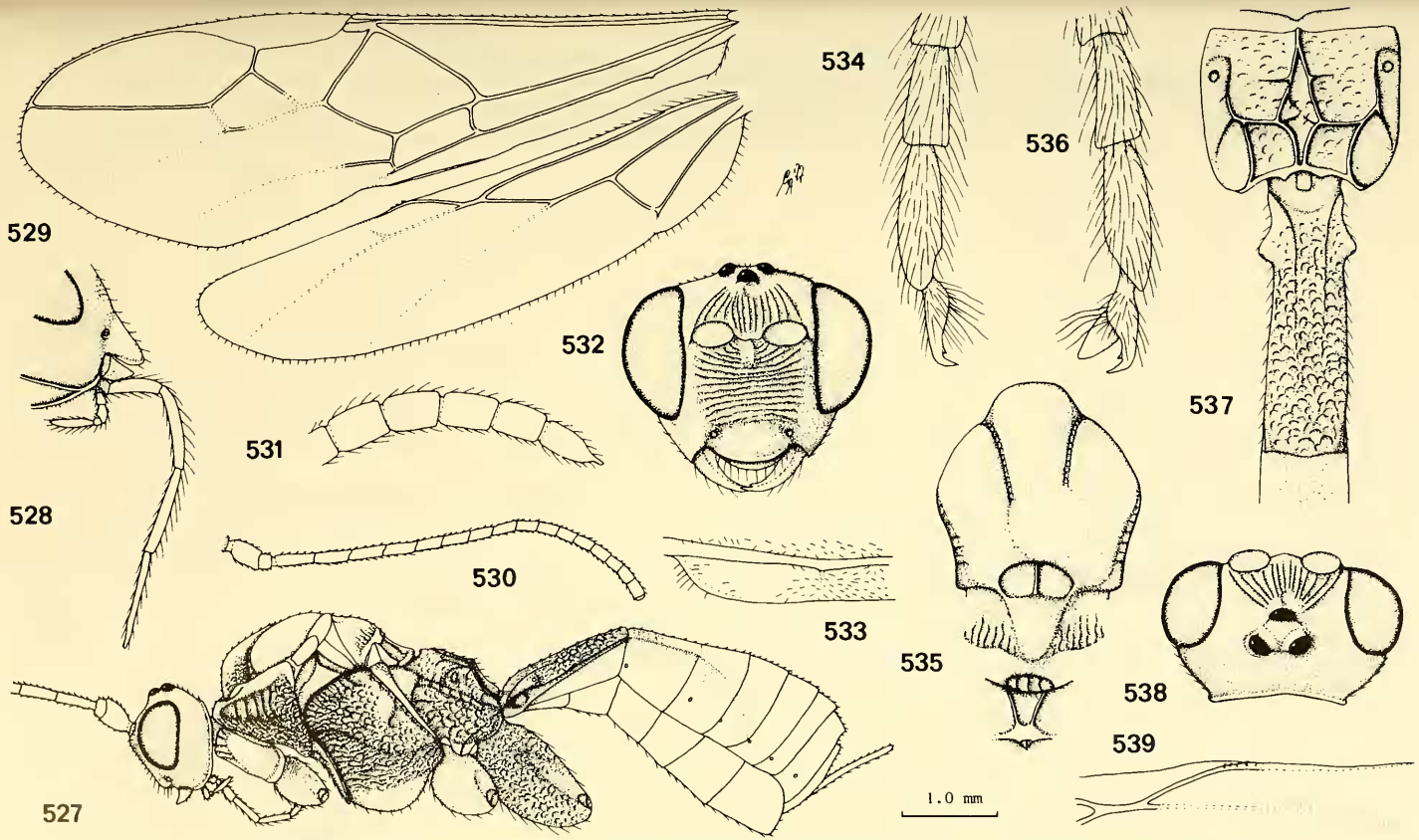
Figs. 492—502, *Homolobus (Phylacter) annulicornis* (Nees), neotype, but 501 of ♀ from Denmark, Klaekket. 492, habitus, lateral aspect; 493, antenna; 494, wings; 495, detail of veins SC + R1 and SR of hind wing; 496, detail of veins 1A + 2A and 2A of fore wing; 497, palpi; 498, outer hind claw; 499, head, dorsal aspect; 500, head, frontal aspect; 501, apex of antenna; 502, inner hind claw. 492—494: scale-line, 1 ×; 495—497, 499, 500: 2.0 ×; 498, 501, 502: 5.0 ×



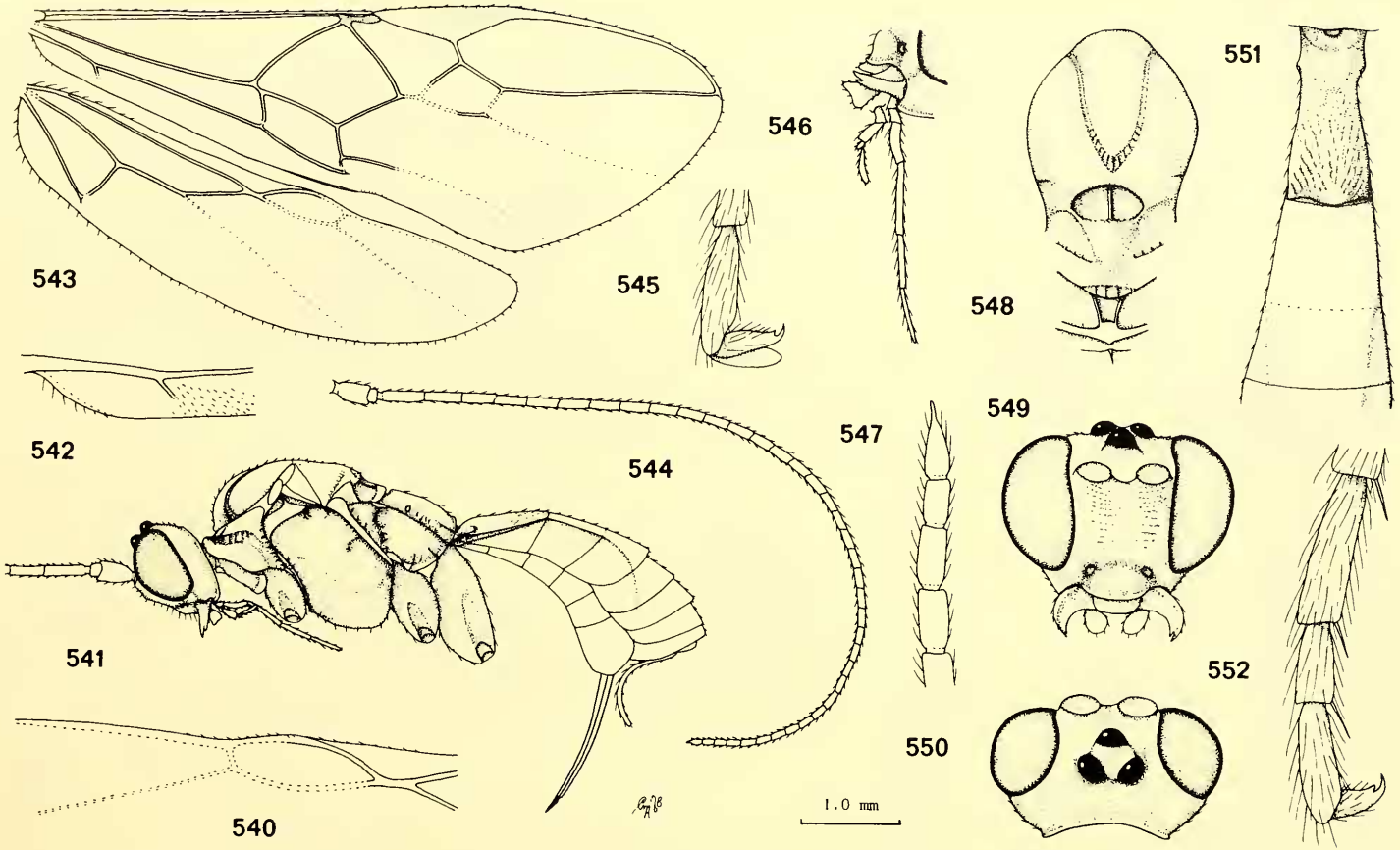
Figs. 503—512, *Homolobus (Phylacter) meridionalis* spec. nov., holotype. 503, habitus, lateral aspect; 504, detail of veins 1A + 2A and 2A of fore wing; 505, palpi; 506, wings; 507, detail of SC + R1 and SR of hind wing; 508, antenna; 509, head, frontal aspect; 510, outer hind claw; 511, propodeum and 1st tergite, dorsal aspect; 512, inner hind claw. 503, 506, 508: scale-line, 1 ×; 504, 505, 507, 509, 511: 2.0 ×; 510, 512: 5.0 ×



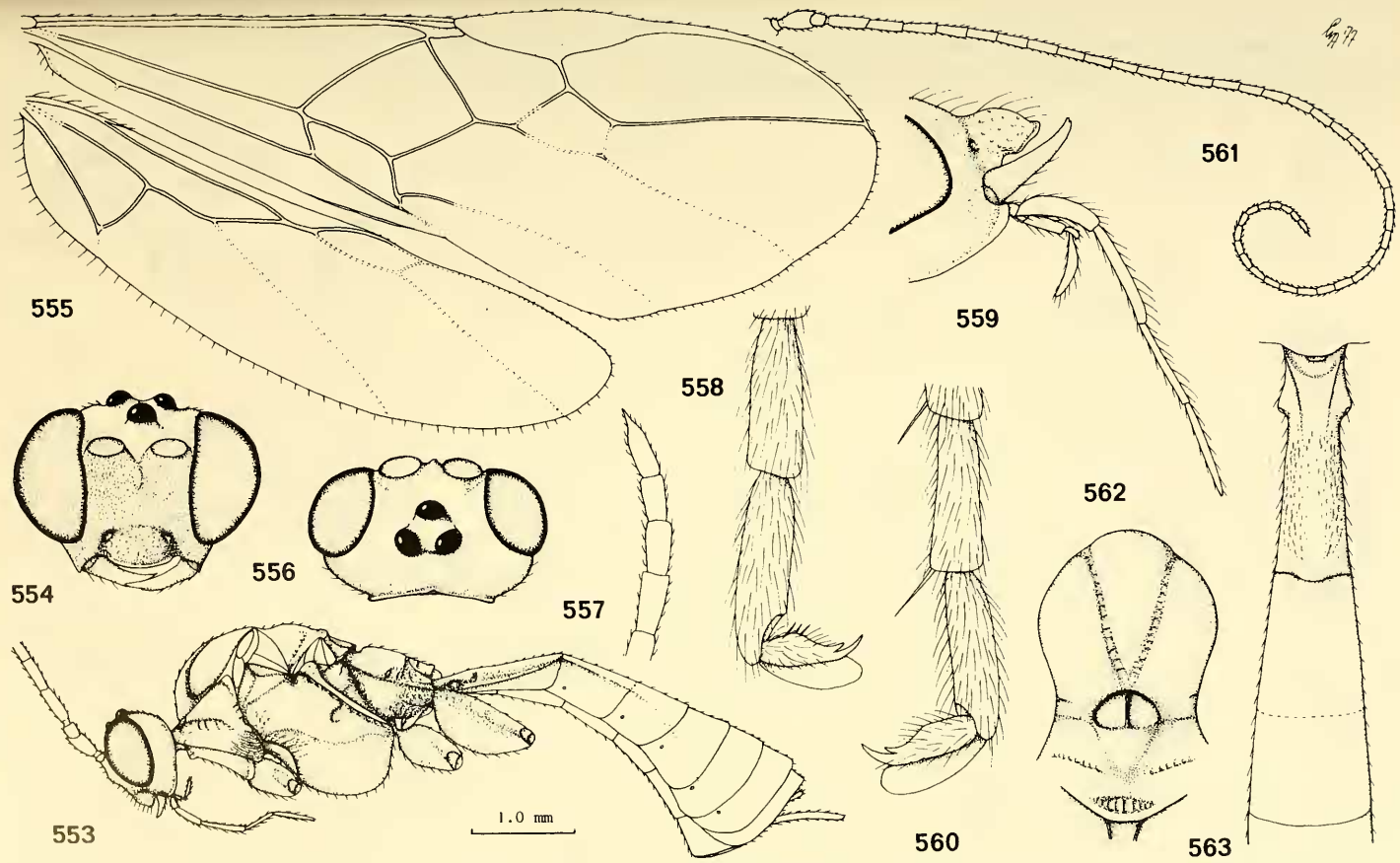
Figs. 513—526, *Homolobus (Oulophus) carbonator* (Shestakov), holotype. 513, habitus, lateral aspect; 514, antenna; 515, detail of veins 1A + 2A and 2A of fore wing; 516, wings; 517, inner fore claw; 518, apex of antenna; 519, detail of veins SC + R1 and SR of hind wing; 520, head, dorsal aspect; 521, palpi; 522, outer hind claw; 523, hind leg; 524, inner hind claw; 525, head, frontal aspect; 526, 1st—3rd tergites, dorsal aspect. 513, 514, 516, 523: scale-line, 1 ×; 515, 519—521, 525, 526: 2.0 ×; 517, 518, 522, 524: 5.0 ×



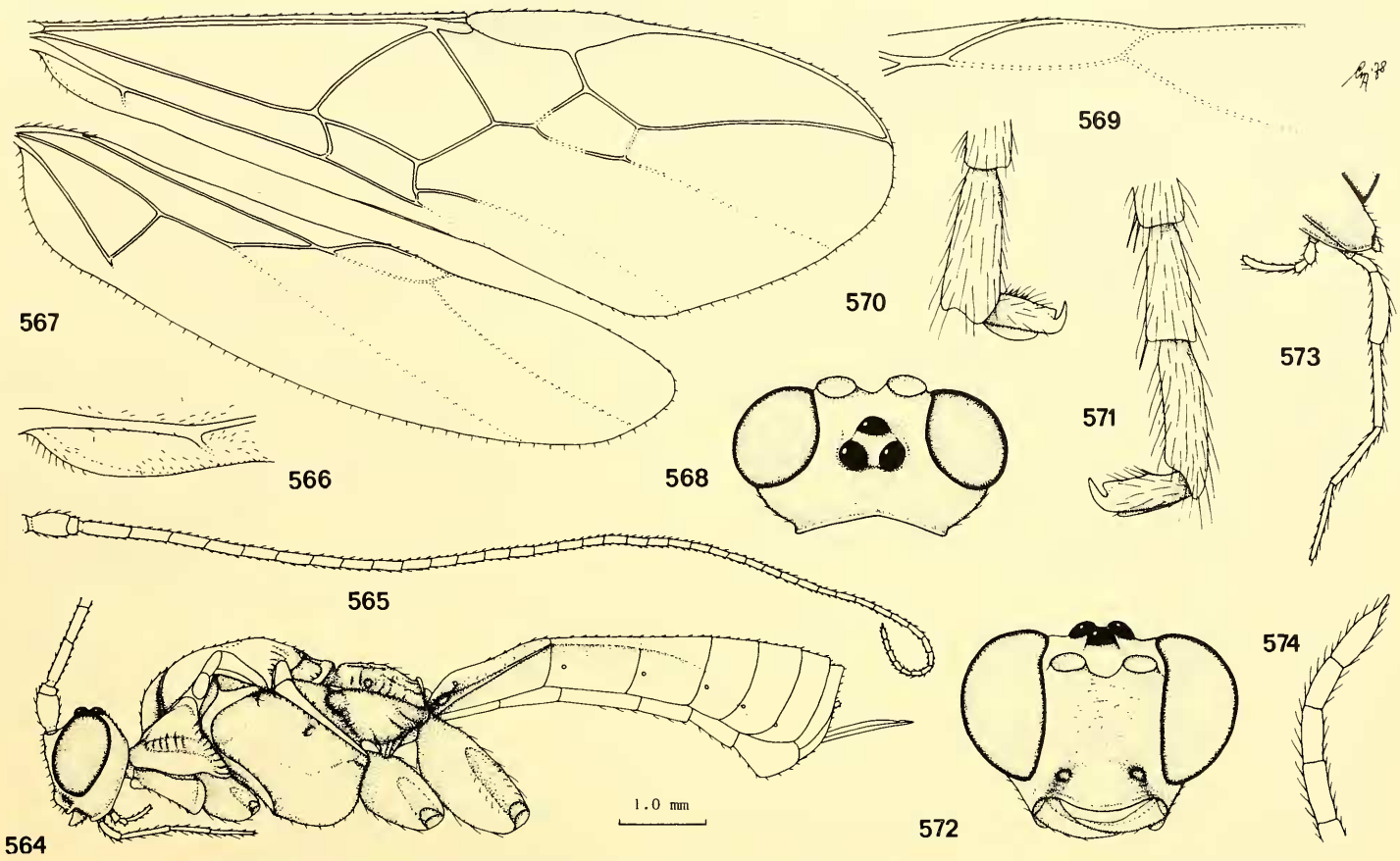
Figs. 527—539, *Homolobus (Oulophus) bohemani* (Bengtsson), holotype, but 531 after ♀ from Finland, Parikkala. 527, habitus, lateral aspect; 528, palpi; 529, wings; 530, antenna; 531, apex of antenna; 532, head, frontal aspect; 533, detail of veins 1A + 2A and 2A of fore wing; 534, inner hind claw; 535, mesonotum, dorsal aspect; 536, outer hind claw; 537, propodeum and 1st tergite, dorsal aspect; 538, head, dorsal aspect; 539, detail of veins SC + R1 and SR of hind wing. 527, 529, 530: scale-line, 1 ×; 528, 532, 533, 535, 537—539: 2.0 ×; 531, 534, 536: 5.0 ×



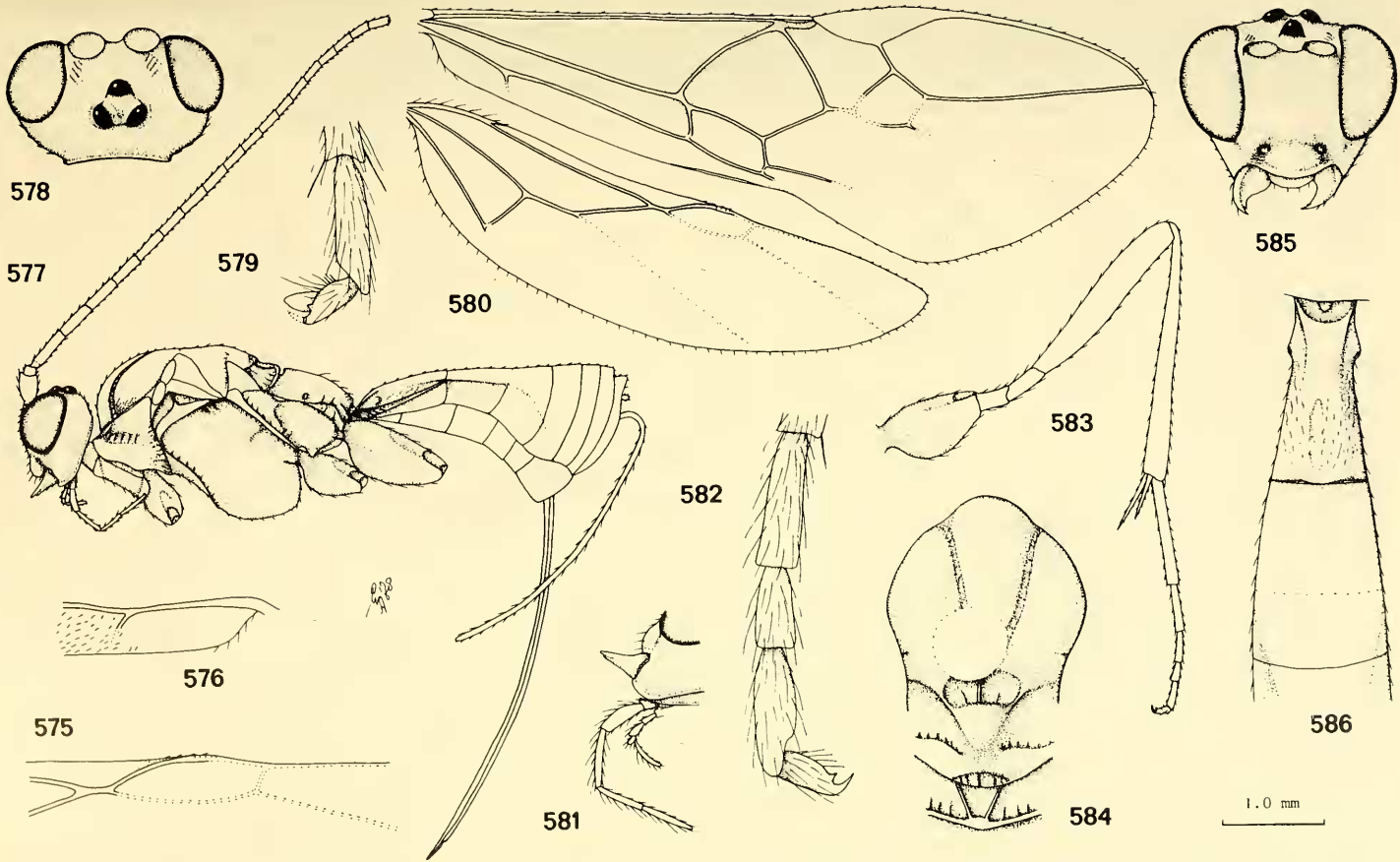
Figs. 540—552, *Homolobus (Oulophus) bicolor* spec. nov., holotype. 540, detail of veins SC + R1 and SR of hind wing; 541, habitus, lateral aspect; 542, detail of veins 1A + 2A and 2A of fore wing; 543, wings; 544, antenna; 545, outer hind claw; 546, palpi; 547, apex of antenna; 548, mesonotum, dorsal aspect; 549, head, frontal aspect; 550, head, dorsal aspect; 551, 1st—3rd tergites, dorsal aspect; 552, inner hind claw. 540, 542, 546, 548—551: 2.0 ×; 541, 543, 544: scale-line, 1 ×; 545, 547, 552: 5.0 ×



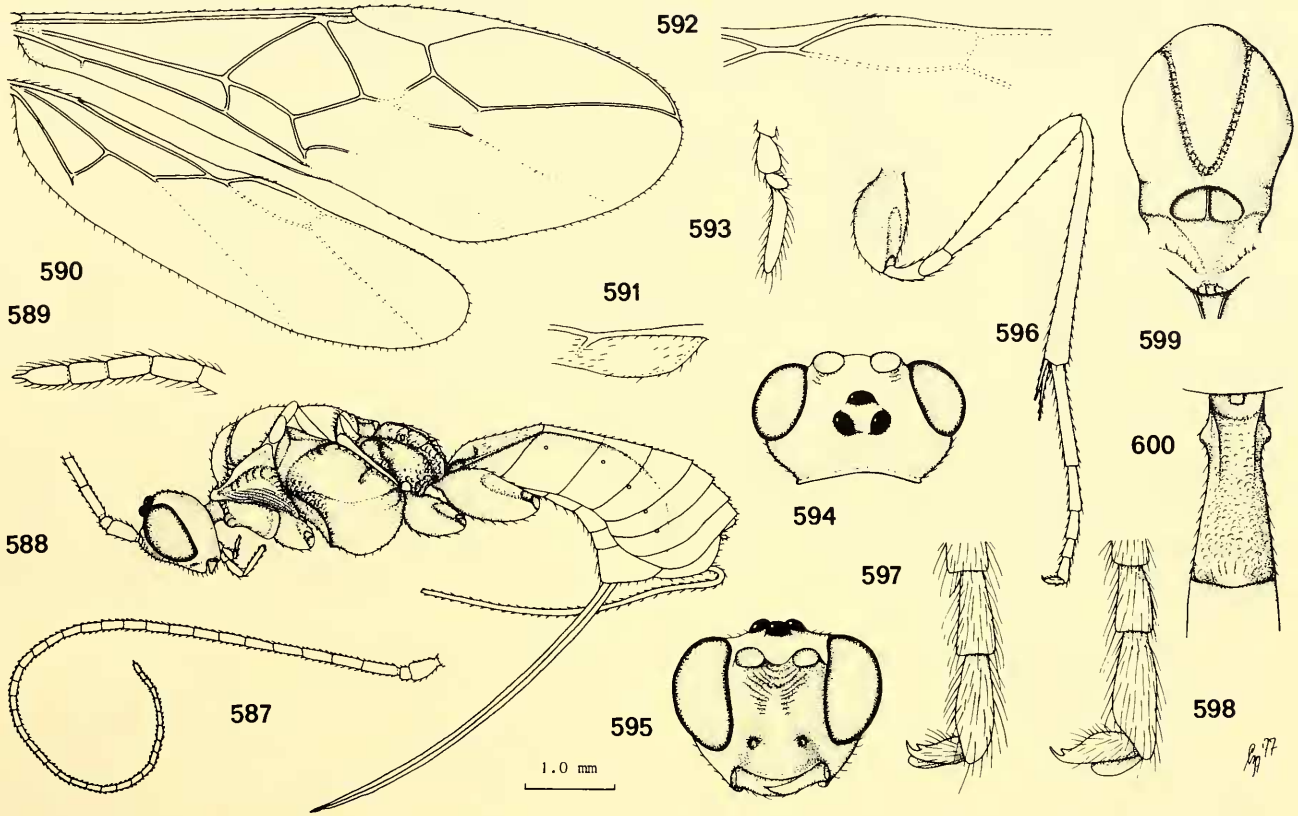
Figs. 553—563, *Homolobus (Oulophus) flagitator* (Curtis), ♀, Ireland, Drinnahilly, but 558—560 after ♀ from Hallifort. 553, habitus, lateral aspect; 554, head, frontal aspect; 555, wings; 556, head, dorsal aspect; 557, apex of antenna; 558, outer hind claw; 559, palpi; 560, inner hind claw; 561, antenna; 562, mesonotum, dorsal aspect; 563, 1st—3rd tergites, dorsal aspect. 553, 555, 561: scale-line, 1 ×; 554, 556, 559, 562, 563: 2.0 ×; 557, 558, 560: 5.0 ×



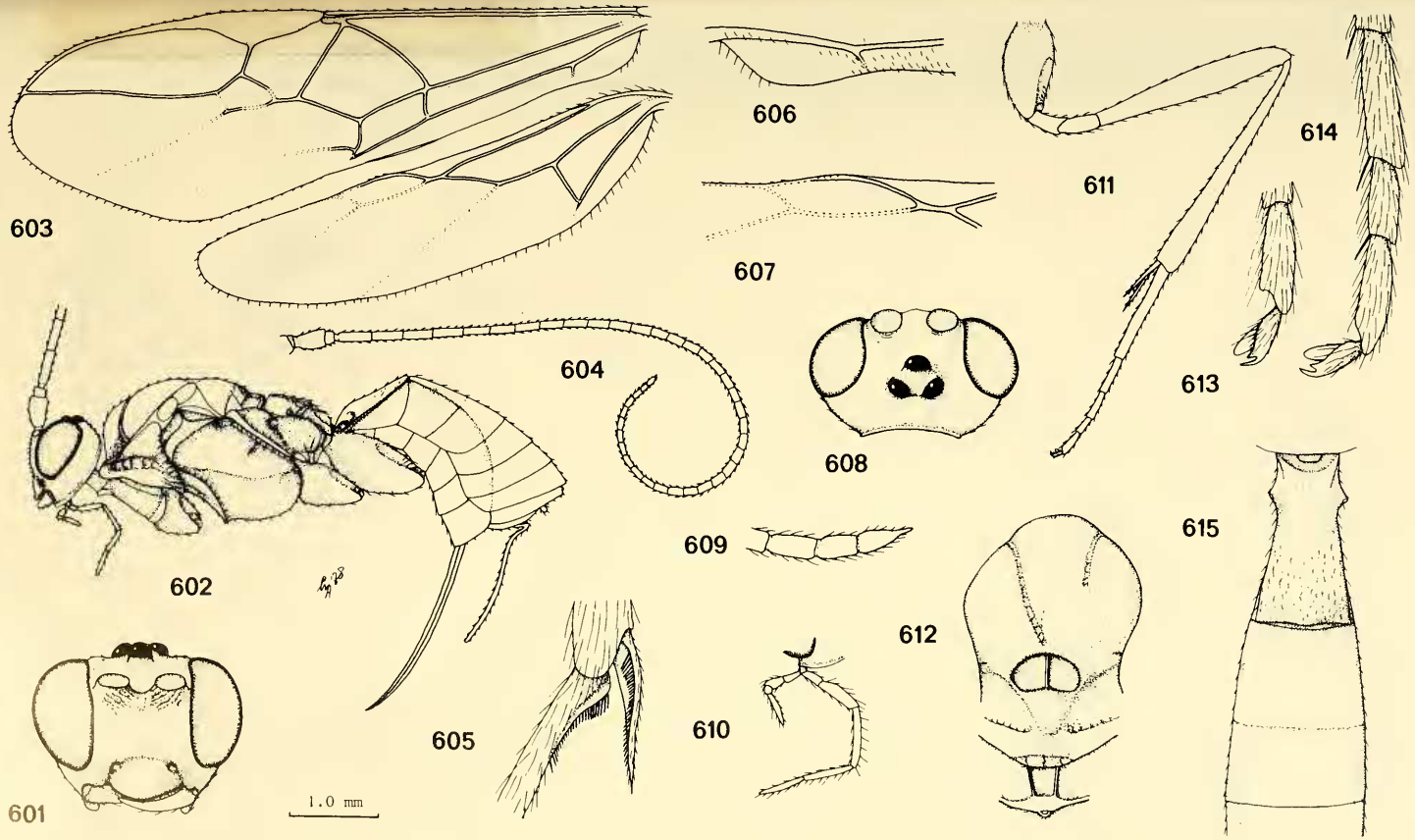
Figs. 564—574, *Homolobus (Oulophus) acares* spec. nov., holotype. 564, habitus, lateral aspect; 565, antenna; 566, detail of veins 1A + 2A and 2A of fore wing; 567, wings; 568, head, dorsal aspect; 569, detail of veins SC + R1 and SR of hind wing; 570, outer hind claw; 571, inner hind claw; 572, head, frontal aspect; 573, palpi; 574, apex of antenna. 564, 565, 567: scale-line, 1 ×; 566, 568, 569, 572, 573: 2.0 ×; 570, 571, 574: 5.0 ×



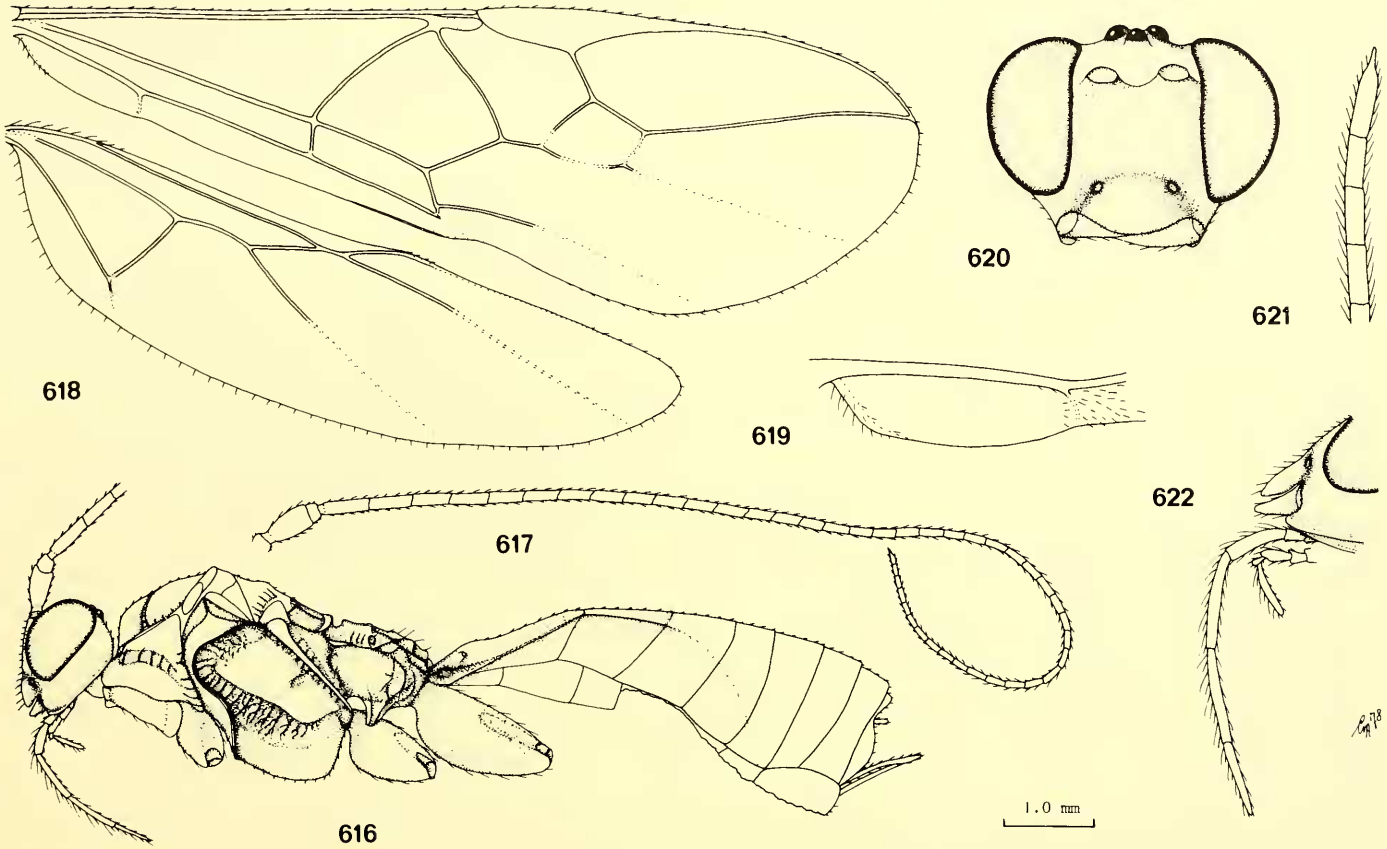
Figs. 575—586, *Homolobus (Oulophus) occidentalis* spec. nov., holotype. 575, detail of veins SC + R1 and SR of hind wing; 576, detail of veins 1A + 2A and 2A of fore wing; 577, habitus, lateral aspect; 578, head, dorsal aspect; 579, outer hind claw; 580 wings; 581, palpi; 582, inner hind claw; 583, hind leg; 584, mesonotum, dorsal aspect; 585, head, frontal aspect; 586, 1st-3rd tergites, dorsal aspect. 575, 576, 578, 581, 584—586: 2.0 ×; 577, 580, 583: scale-line, 1 ×; 579, 582: 5.0 ×



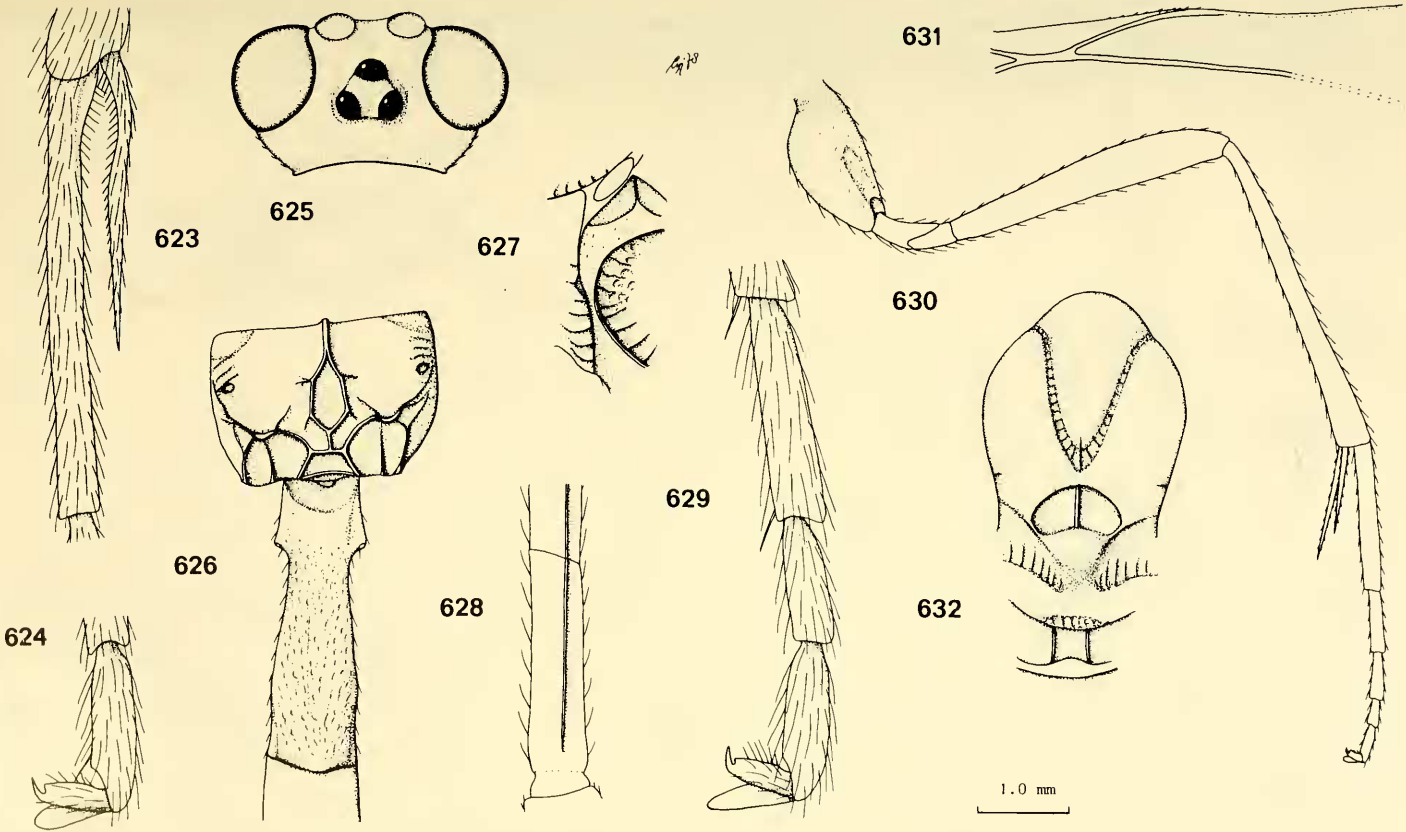
Figs. 587—600, *Homolobus (Oulophus) nipponensis* spec. nov., holotype. 587, antenna; 588, habitus, lateral aspect; 589, apex of antenna; 590, wings; 591, detail of veins 1A + 2A and 2A of fore wing; 592, detail of veins SC + R1 and SR of hind wing; 593, labial palp; 594, head, dorsal aspect; 595, head, frontal aspect; 596, hind leg; 597, outer hind claw; 598, inner hind claw; 599, mesonotum, dorsal aspect; 600, 1st tergite, dorsal aspect. 587, 588, 590, 596: scale-line, 1 ×; 589, 593, 597, 598: 5.0 ×; 591, 592, 594, 595, 599, 600: 2.0 ×



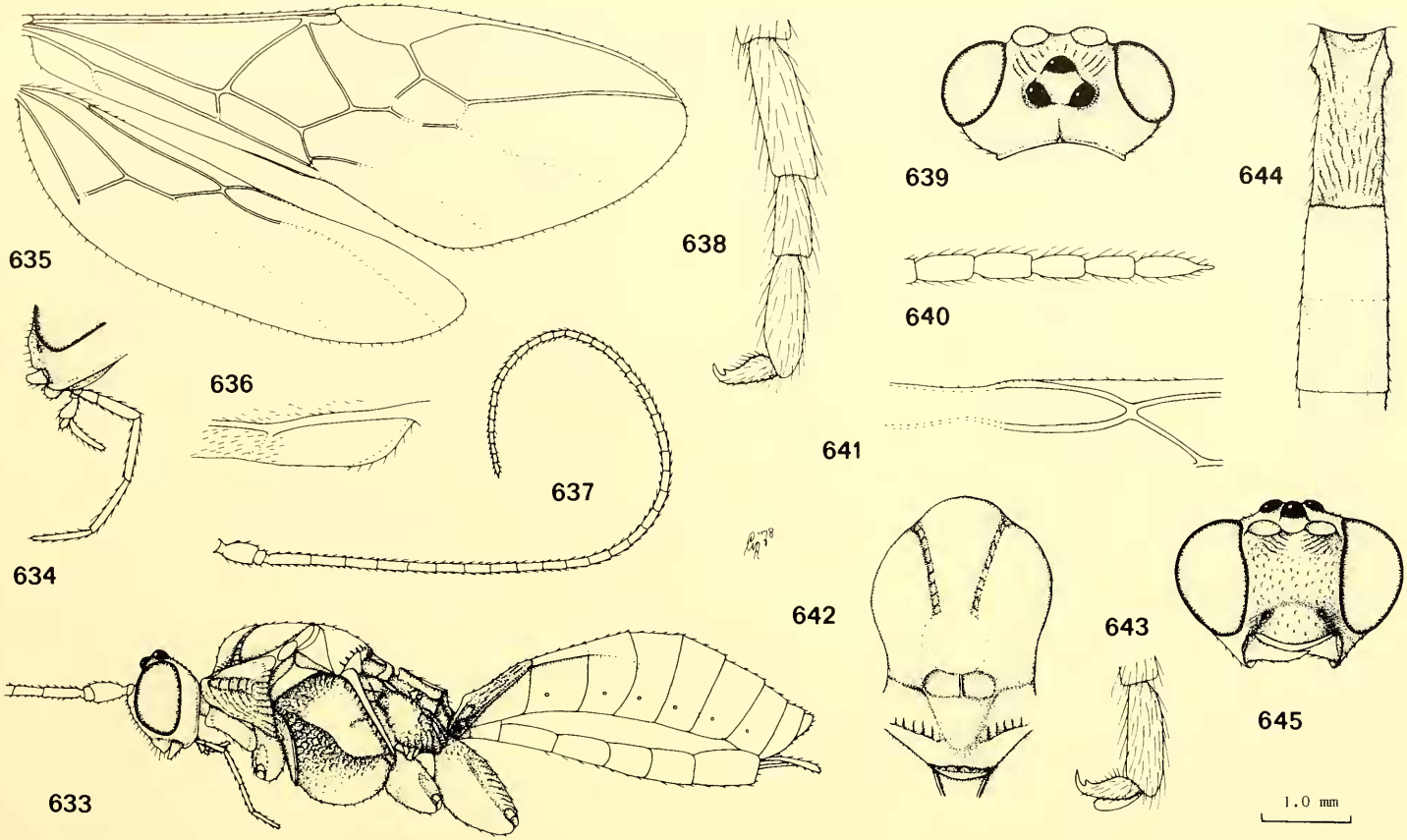
Figs. 601—615, *Homolobus (Oulophus) nepalensis* spec. nov., holotype. 601, head, frontal aspect; 602, habitus, lateral aspect; 603, wings; 604, antenna; 605, fore tibial spur, inner aspect; 606, detail of veins 1A + 2A and 2A of fore wing; 607, detail of veins SC + R1 and SR of hind wing; 608, head, dorsal aspect; 609, apex of antenna; 610, palpi; 611, hind leg; 612, mesonotum, dorsal aspect; 613, outer hind claw; 614, inner hind claw; 615, 1st—3rd tergites, dorsal aspect. 601, 606—608, 610, 612, 615: 2.0 ×; 602—604, 611: scale-line, 1 ×; 605, 609, 613, 614: 5.0 ×



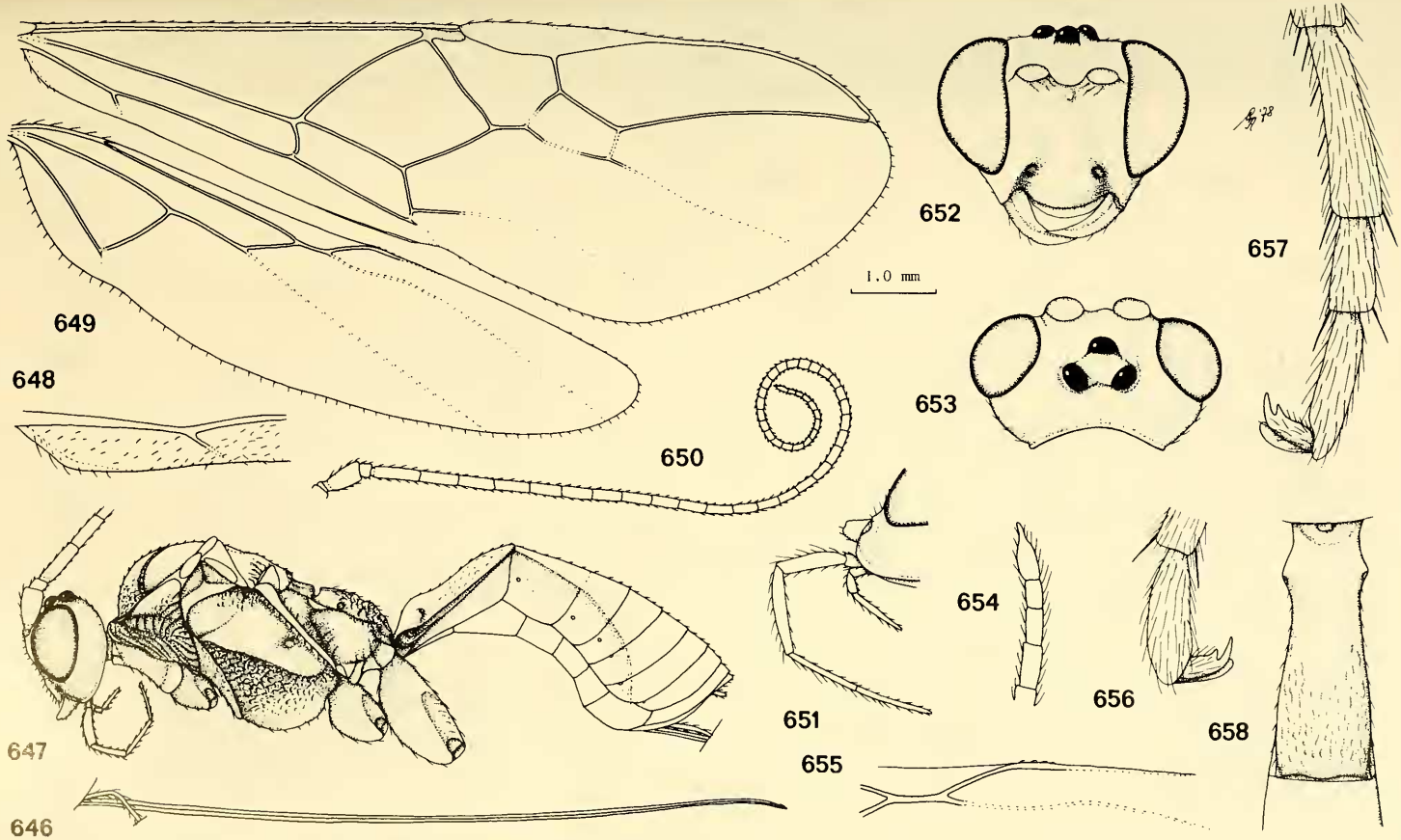
Figs. 616—622, *Homolobus (Oulophus) crenulatus* spec. nov. holotype. 616, habitus, lateral aspect; 617, antenna; 618, wings; 619, detail of veins 1A + 2A and 2A of fore wing; 620, head, frontal aspect; 621, apex of antenna; 622, palpi. 616—618: scale-line, 1 ×; 619, 620, 622: 2.0 ×; 621: 5.0 ×



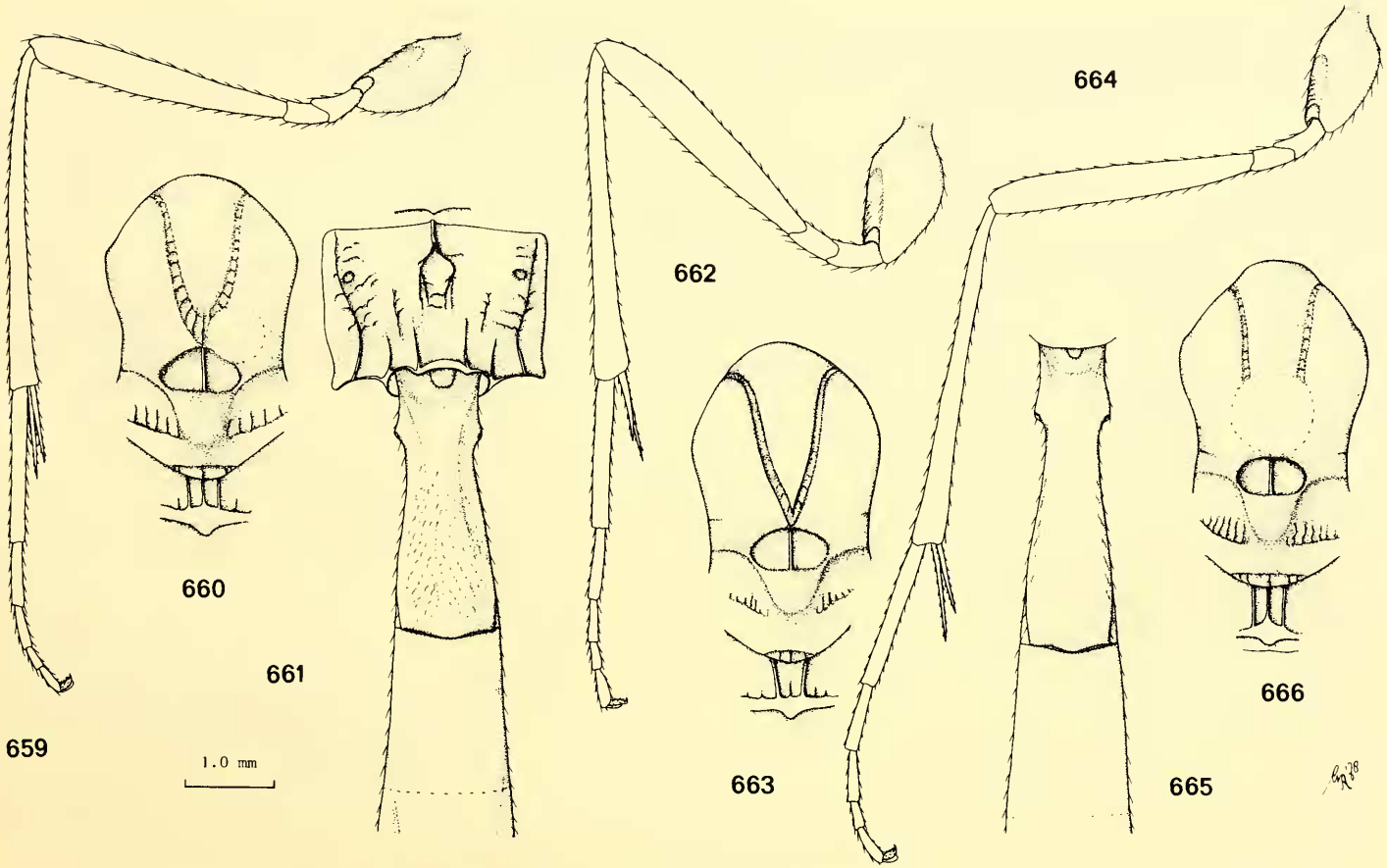
Figs. 623—632, *Homolobus (Oulophus) crenulatus* spec. nov., holotype. 623, fore tibial spurs, inner aspect; 624, outer hind claw; 625, head, dorsal aspect; 626, propodeum and 1st tergite, dorsal aspect; 627, detail of anterior part of mesopleuron; 628, 3rd antennal segment, inner aspect; 629, inner hind claw; 630, hind leg; 631, detail of veins SC + R1 and SR of hind wing; 632, mesonotum, dorsal aspect. 623, 624, 628, 629: 5.0 ×; 625, 627, 631, 632: 2.0 ×; 630: scale-line 1 ×



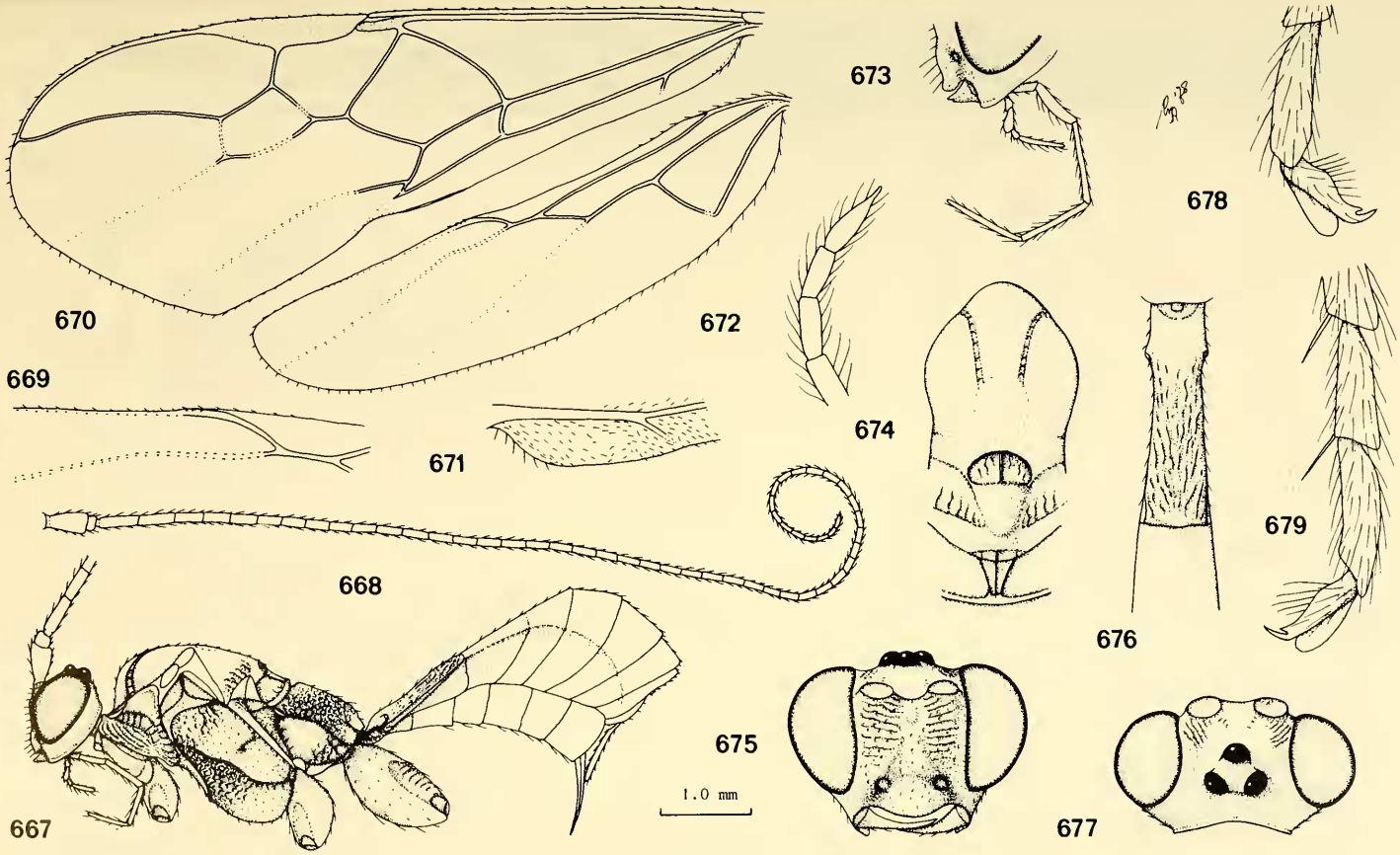
Figs. 633—645, *Homolobus (Oulophus) annulatus* spec. nov., holotype. 633, habitus, lateral aspect; 634, palpi; 635, wings; 636, detail of veins 1A + 2A and 2A of fore wing; 637, antenna; 638, inner hind claw; 639, head, dorsal aspect; 640, apex of antenna; 641, detail of veins SC + R1 and SR of hind wing; 642, mesonotum, dorsal aspect; 643, outer hind claw; 644, 1st—3rd tergites, dorsal aspect; 645, head, frontal aspect. 633, 635, 637: scale-line, 1 ×; 634, 636, 639, 641, 642, 644, 645: 2.0 ×; 638, 640, 643: 5.0 ×



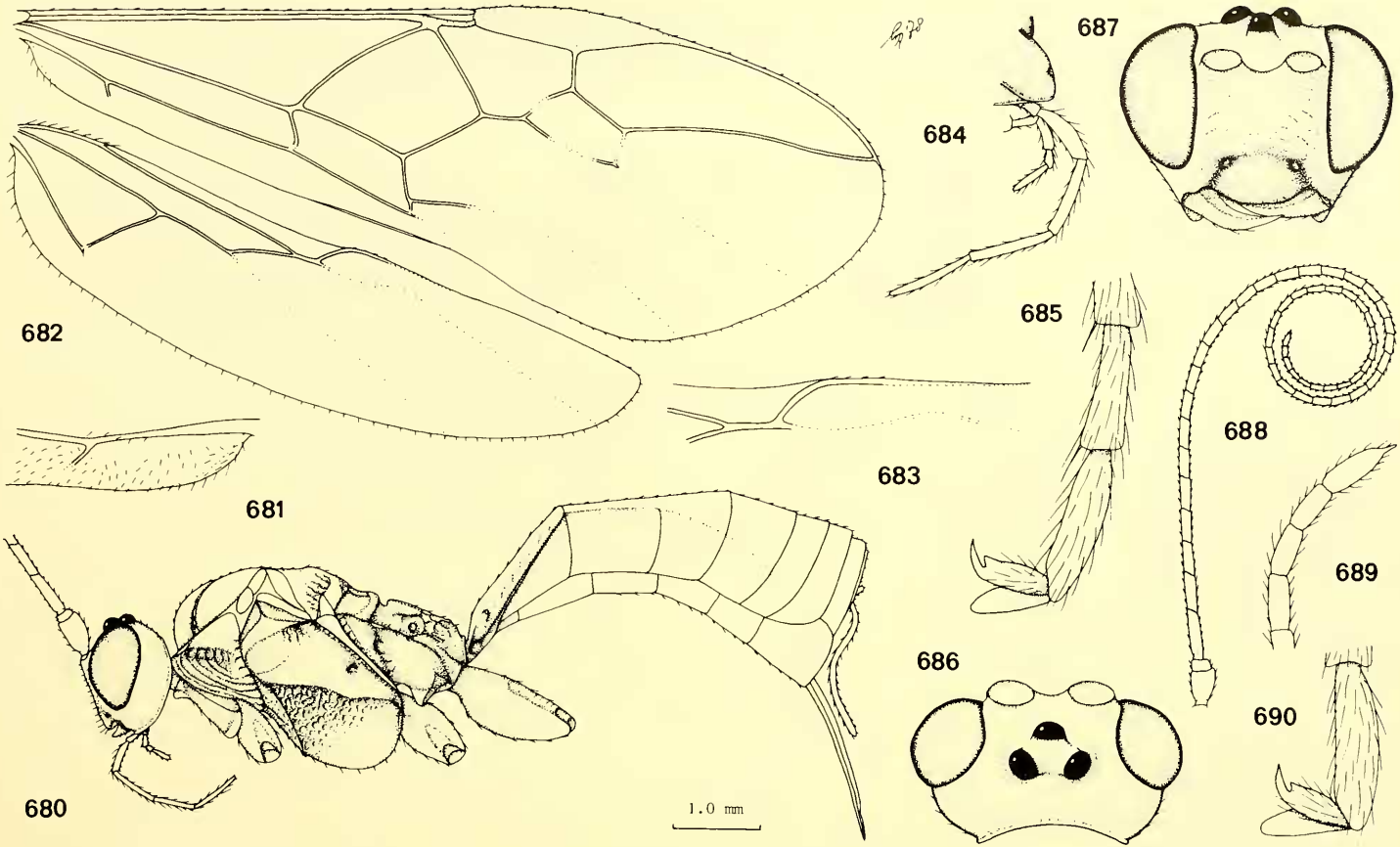
Figs. 646—658, *Homolobus (Oulophus) armatus* spec. nov., holotype. 646, ovipositor; 647, habitus, lateral aspect; 648, detail of veins 1A + 2A and 2A of fore wing; 649, wings; 650, antenna; 651, palpi; 652, head, frontal aspect; 653, head, dorsal aspect; 654, apex of antenna; 655, detail of SC + R1 and SR of hind wing; 656, outer hind claw; 657, inner hind claw; 658, 1st tergite, dorsal aspect. 646, 647, 649, 650: scale-line, 1 ×; 648, 651—653, 655, 658: 2.0 ×; 654, 656, 657: 5.0 ×



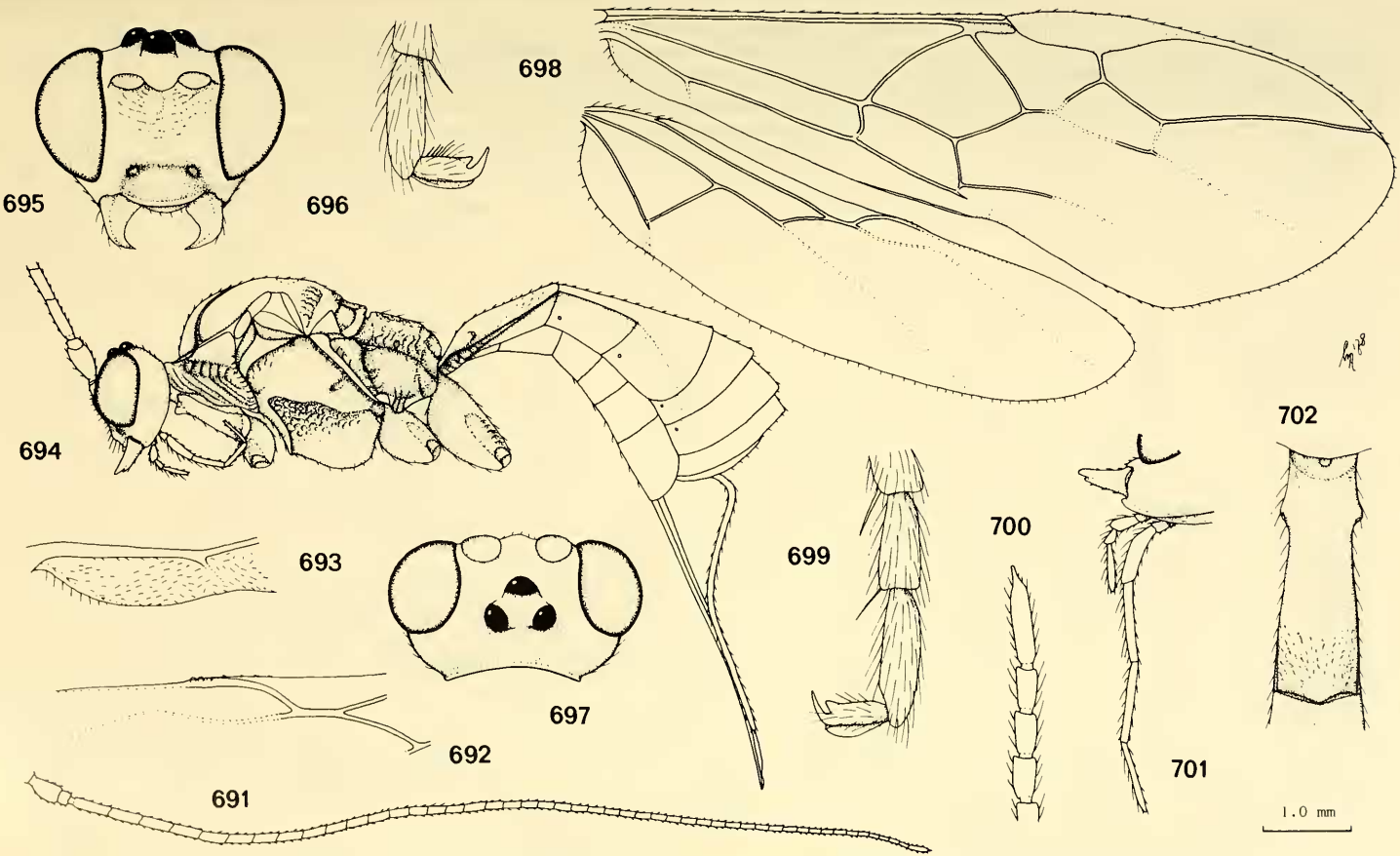
Figs. 659, 660, *Homolobus (Oulophus) armatus* spec. nov., holotype. 659, hind leg; 660, mesonotum, dorsal aspect. Figs. 661—663, *Homolobus (Oulophus) acares* spec. nov., holotype. 661, propodeum, 1st and 2nd tergites, dorsal aspect; 662, hind leg; 663, mesonotum, dorsal aspect. Figs. 664—666, *Homolobus (Oulophus) antefurcalis* spec. nov., holotype. 664, hind leg; 665, 1st and 2nd tergites, dorsal aspect; 666, mesonotum, dorsal aspect. 659, 662, 664: scale-line, 1 ×; 660, 661, 663, 665, 666: 2.0 ×



Figs. 667—679, *Homolobus (Oulophus) obscurus* spec. nov., holotype. 667, habitus, lateral aspect; 668, antenna; 669, detail of veins SC + R1 and SR of hind wing; 670, wings; 671, detail of veins 1A + 2A and 2A of fore wing; 672, apex of antenna; 673, palpi; 674, mesonotum, dorsal aspect; 675, head, frontal aspect; 676, 1st tergite, dorsal aspect; 677, head, dorsal aspect; 678, outer hind claw; 679, inner hind claw. 667, 668, 670: scale-line, 1 ×; 669, 671, 673—677: 2.0 ×; 672, 678, 679: 5.0 ×



Figs. 680—690. *Homolobus (Oulophus) antefurcalis* spec. nov., holotype. 680, habitus, lateral aspect; 681, detail of veins 1A + 2A and 2A of fore wing; 682, wings; 683, detail of veins SC + R1 and SR of hind wing; 684, palpi; 685, inner hind claw; 686, head, dorsal aspect; 687, head, frontal aspect; 688, antenna; 689, apex of antenna; 690, outer hind claw. 680, 682, 688: scale-line, 1 ×; 681, 683, 684, 686, 687: 2.0 ×; 685, 689, 690: 5.0 ×



Figs. 691—702, *Homolobus (Oulophus) mesoxiphius* spec. nov., holotype. 691, antenna; 692, detail of veins SC + R1 and SR of hind wings; 693, detail of veins 1A + 2A and 2A of hind wing; 694, habitus, lateral aspect; 695, head, frontal aspect; 696, outer hind claw; 697, head, dorsal aspect; 698, wings; 699, inner hind claw; 700, apex of antenna; 701, palpi; 702, 1st tergite, dorsal aspect. 691, 694, 698: scale-line, 1 ×; 692, 693, 695, 7697, 701, 702: 2.0 ×; 696, 699, 700: 5.0 ×

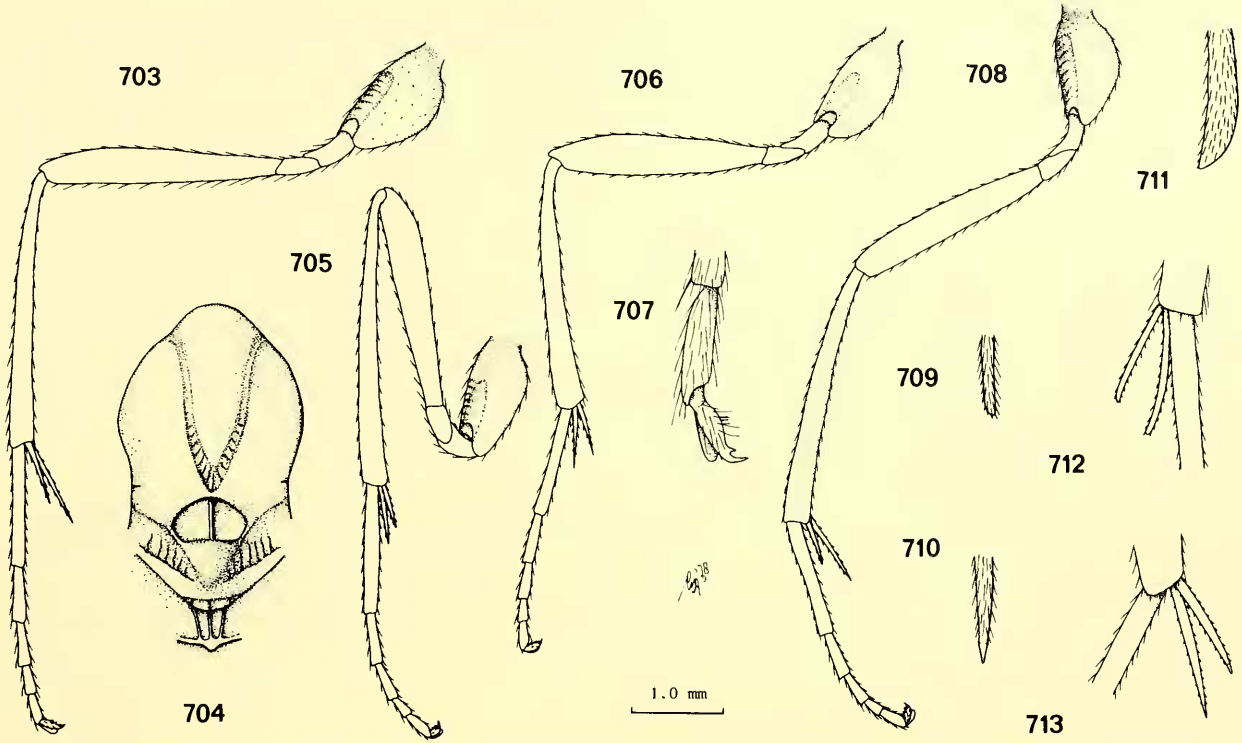
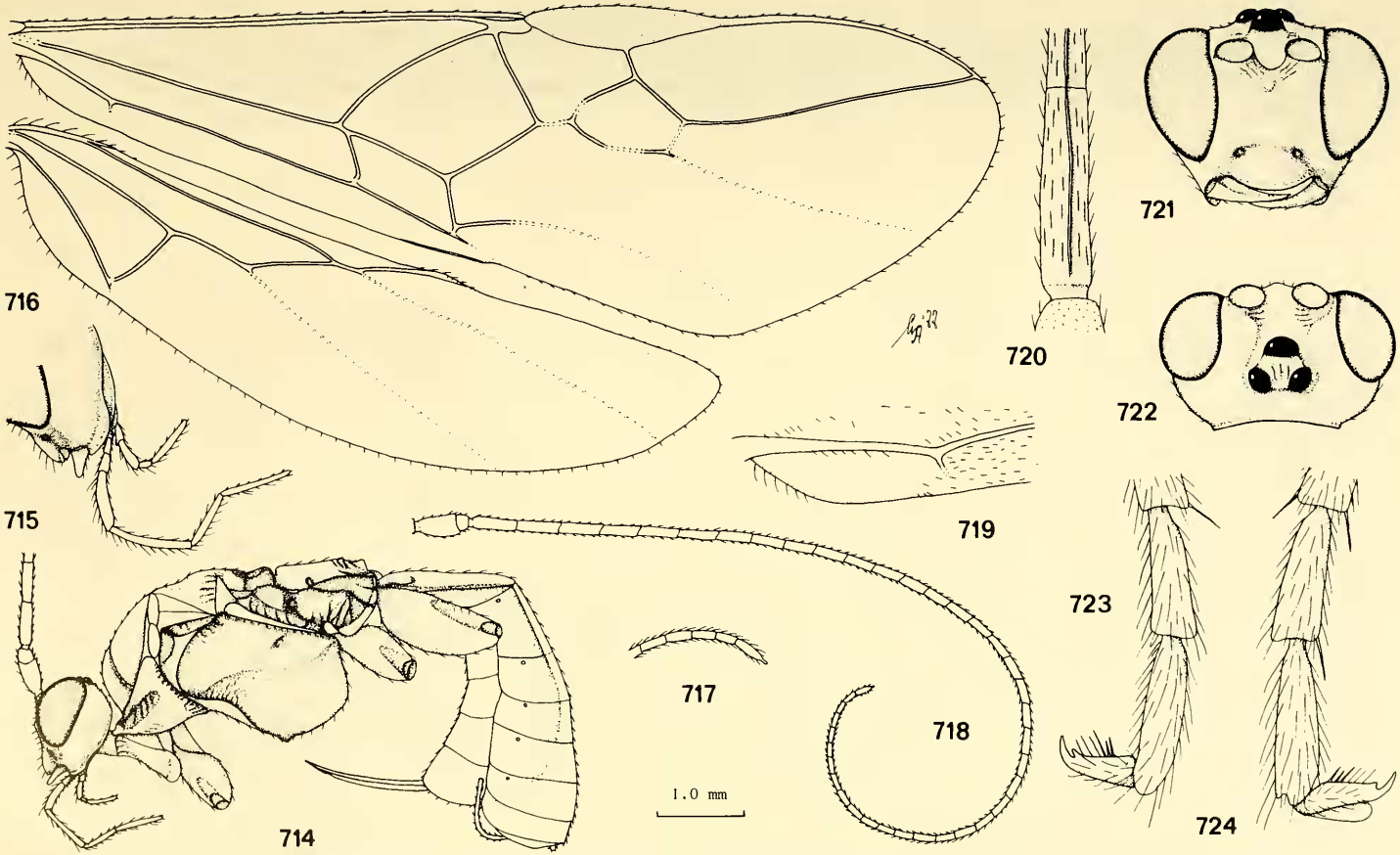
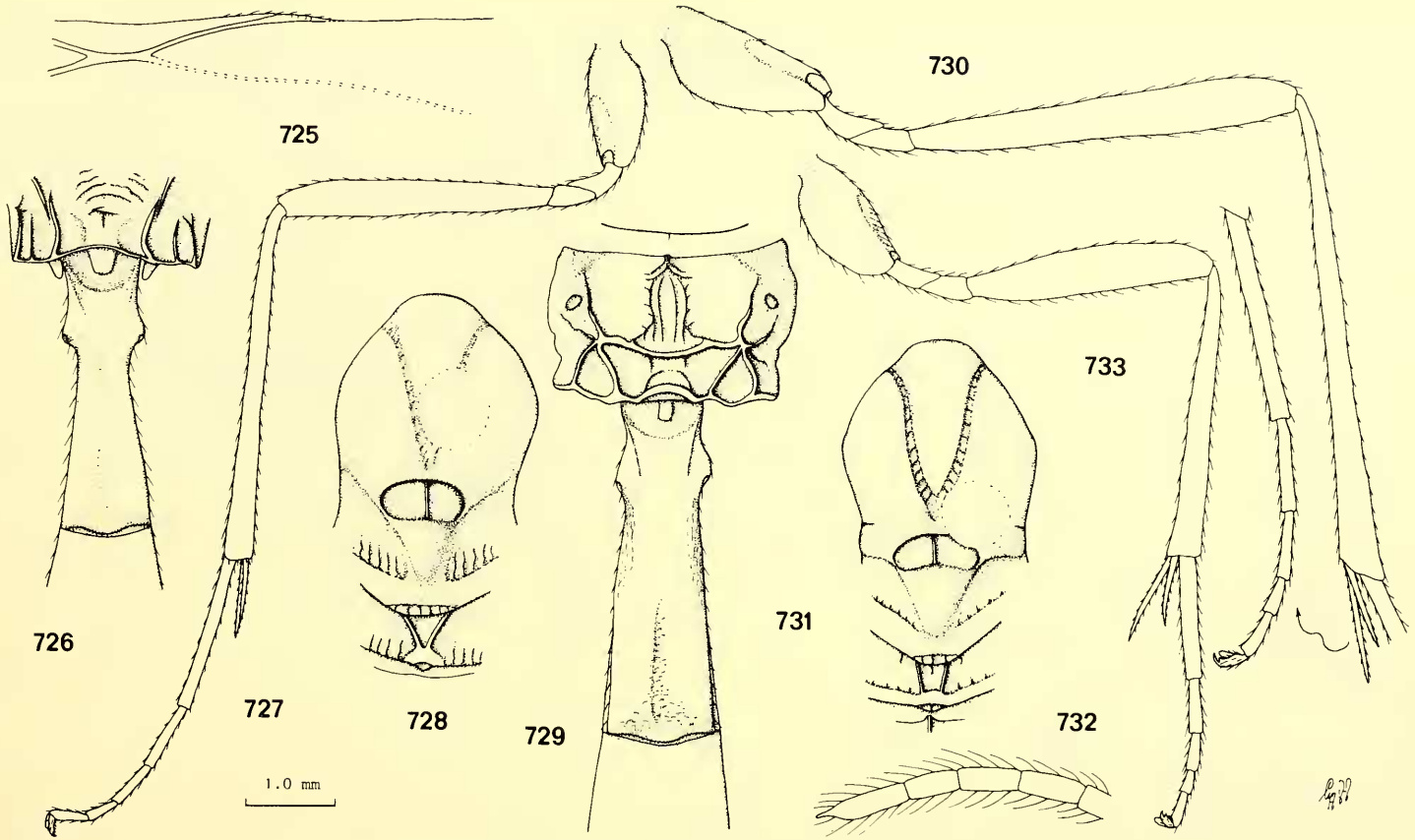


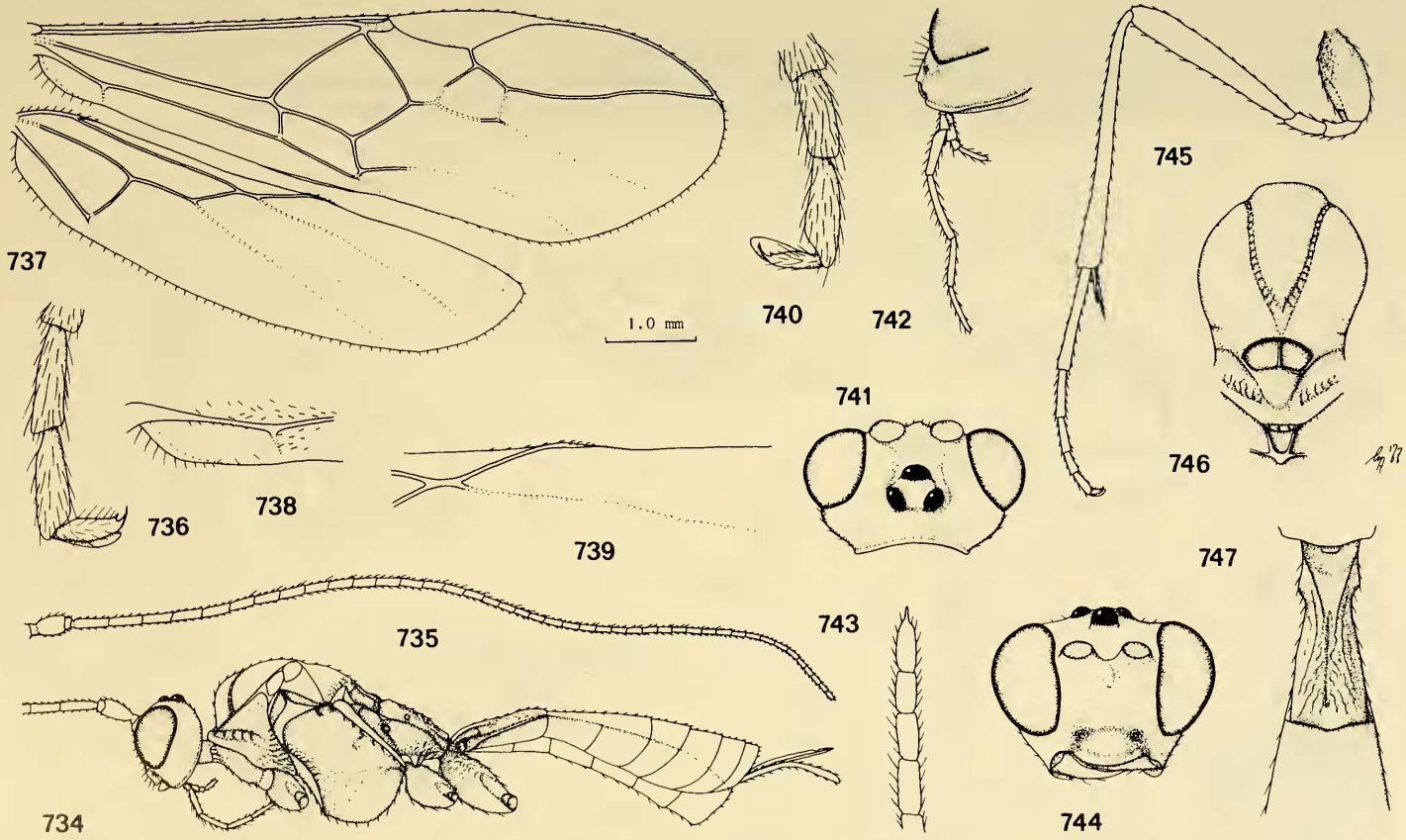
Fig. 703, *Homolobus (Oulophus) obscurus* spec. nov., holotype, hind leg. Figs. 704, 705, *Homolobus (Oulophus) mesoxiphius* spec. nov., holotype. 704, mesonotum, dorsal aspect; 705, hind leg. Fig. 706, *Homolobus (Oulophus) bicolor* spec. nov., holotype, hind leg. Fig. 707, *Homolobus (Oulophus) bohemani* (Bengtsson), ♀, India, Kumaon Hills, outer hind claw. Fig. 708, *Homolobus (Oulophus) annulatus* spec. nov., holotype, hind leg. Figs. 709, 712, *Homolobus (Apatia) pallidistigmus* (Cameron), ♂, Tanzania, Magamba. 709, detail of apex of outer hind spur; 712, hind tibial spurs, lateral aspect. Fig. 711, *Homolobus (Apatia) truncator* (Say), ♂, U.S.A., Michigan, Chrystal Falls, apex of outer hind spur, lateral aspect. Figs. 710, 713, *Homolobus (Apatia) priapus* (Nixon), ♂, S.Africa, Magoesbaskloof. 710, detail of apex of outer hind spur, lateral aspect; 713, hind tibial spurs, lateral aspect. 703, 705, 706, 708: scale-line, 1 ×; 704, 712, 713: 2.0 ×; 707, 709—711: 5.0 ×



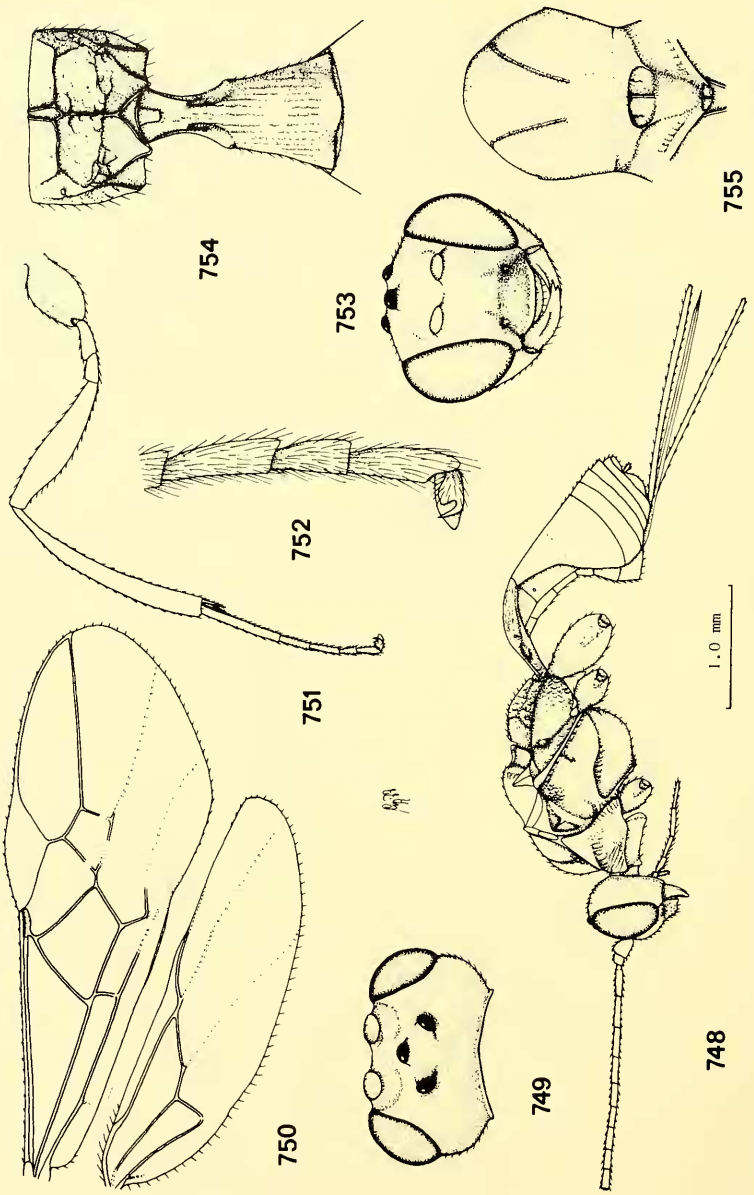
Figs. 714—724, *Homolobus (Oulophus) macropterus* spec. nov., holotype. 714, habitus, lateral aspect; 715, palpi; 716, wings; 717, apex of antenna; 718, antenna; 719, detail of veins 1A + 2A and 2A; 720, 3rd antennal segment, inner aspect; 721, head, frontal aspect; 722, head, dorsal aspect; 723, inner hind claw; 724, outer hind claw. 714, 716, 718: scale-line, 1 ×; 715, 717, 719, 721, 722: 2.0 ×; 720, 723, 724: 5.0 ×



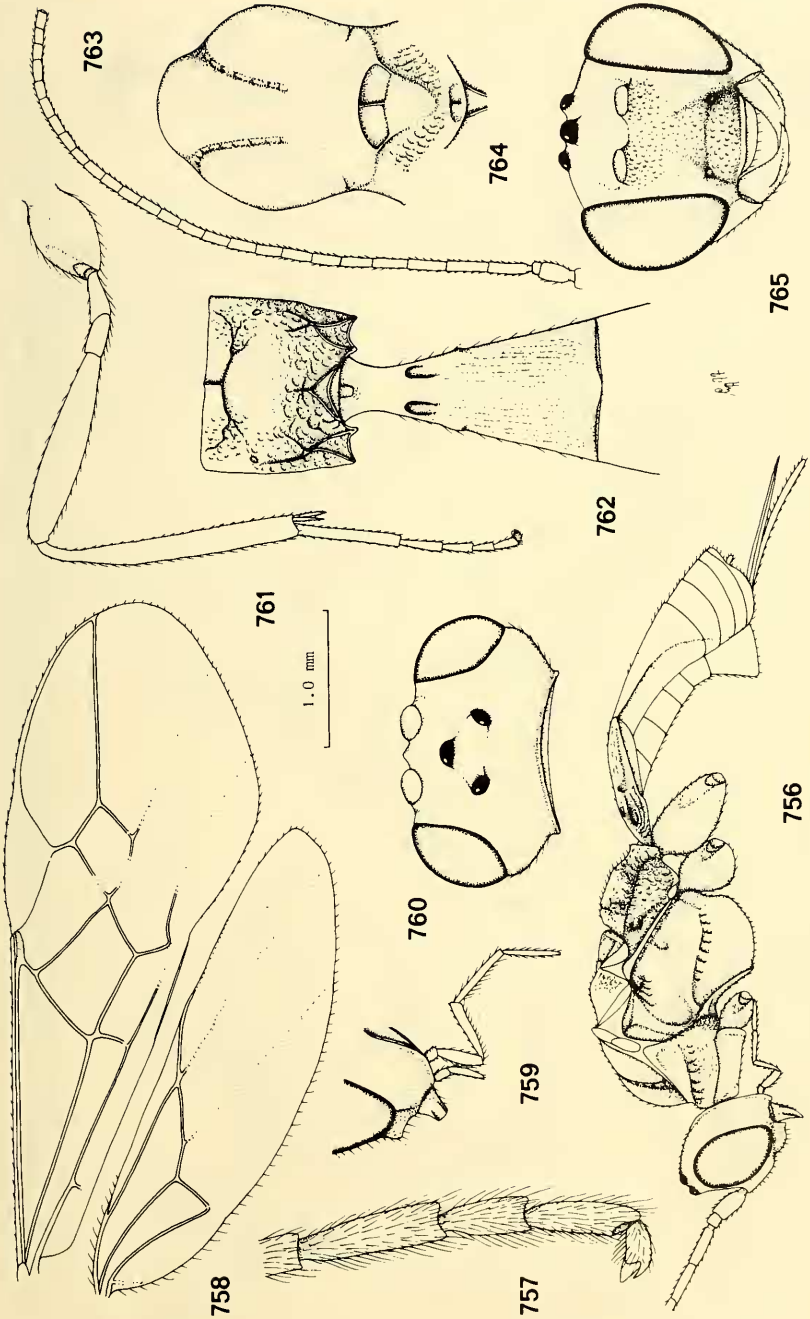
Figs. 725—728, *Homolobus (Oulophus) macropterus* spec. nov., holotype. 725, detail of veins SC + R1 and SR of hind wing; 726, apical half of propodeum and 1st tergite, dorsal aspect; 727, hind leg; 728, mesonotum, dorsal aspect. Fig. 729, 730, *Homolobus* (*Chartolobus*) *undulatus* spec. nov., holotype. 729, propodeum and 1st tergite, dorsal aspect; 730, hind leg. Fig. 731—733, *Exasticolus tuberculatus* spec. nov., holotype. 731, mesonotum, dorsal aspect; 732, apex of antenna; 733, hind leg. 725, 726, 728, 731: 2.0 ×; 727, 730, 733: scale-line, 1 ×; 729: 1.4 ×; 732: 5.0 ×



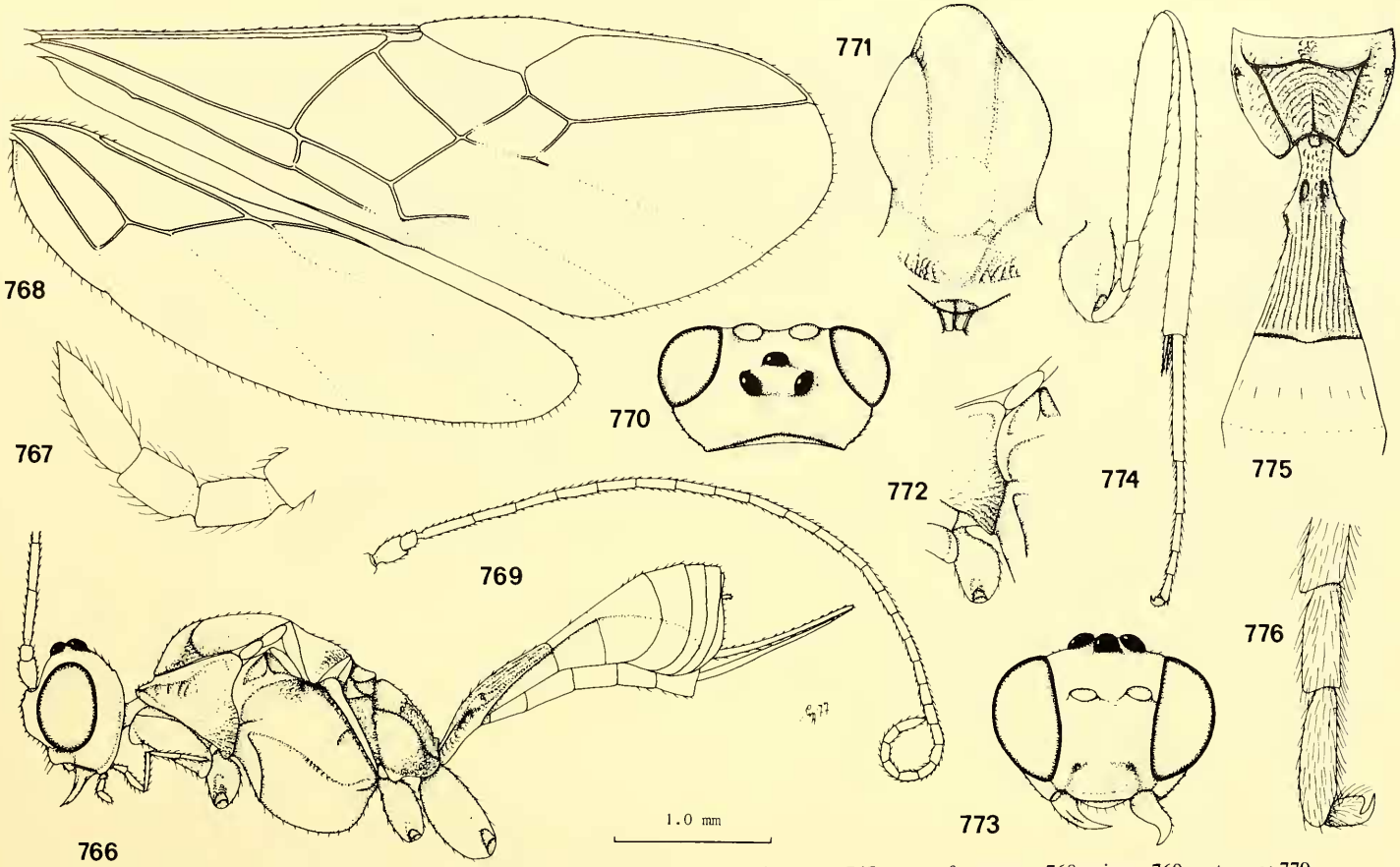
Figs. 734—747, *Homolobus (Oulophus) rectinervis* spec. nov., holotype. 734, habitus, lateral aspect; 735, antenna; 736, claw; 737, wings; 738, detail of veins 1A + 2A and 2A of fore wing; 739, detail of veins SC + R1 and SR of hind wing; 740, outer hind claw; 741, head, dorsal aspect; 742, palpi; 743, apex of antenna; 744, head, frontal aspect; 745, hind leg: 746, mesonotum, dorsal aspect; 747, 1st tergite, dorsal aspect. 734, 735, 737, 745: scale-line, 1 ×; 736, 740, 743: 5.0 ×; 738, 739, 741, 742, 744, 746, 747: 2.0 ×



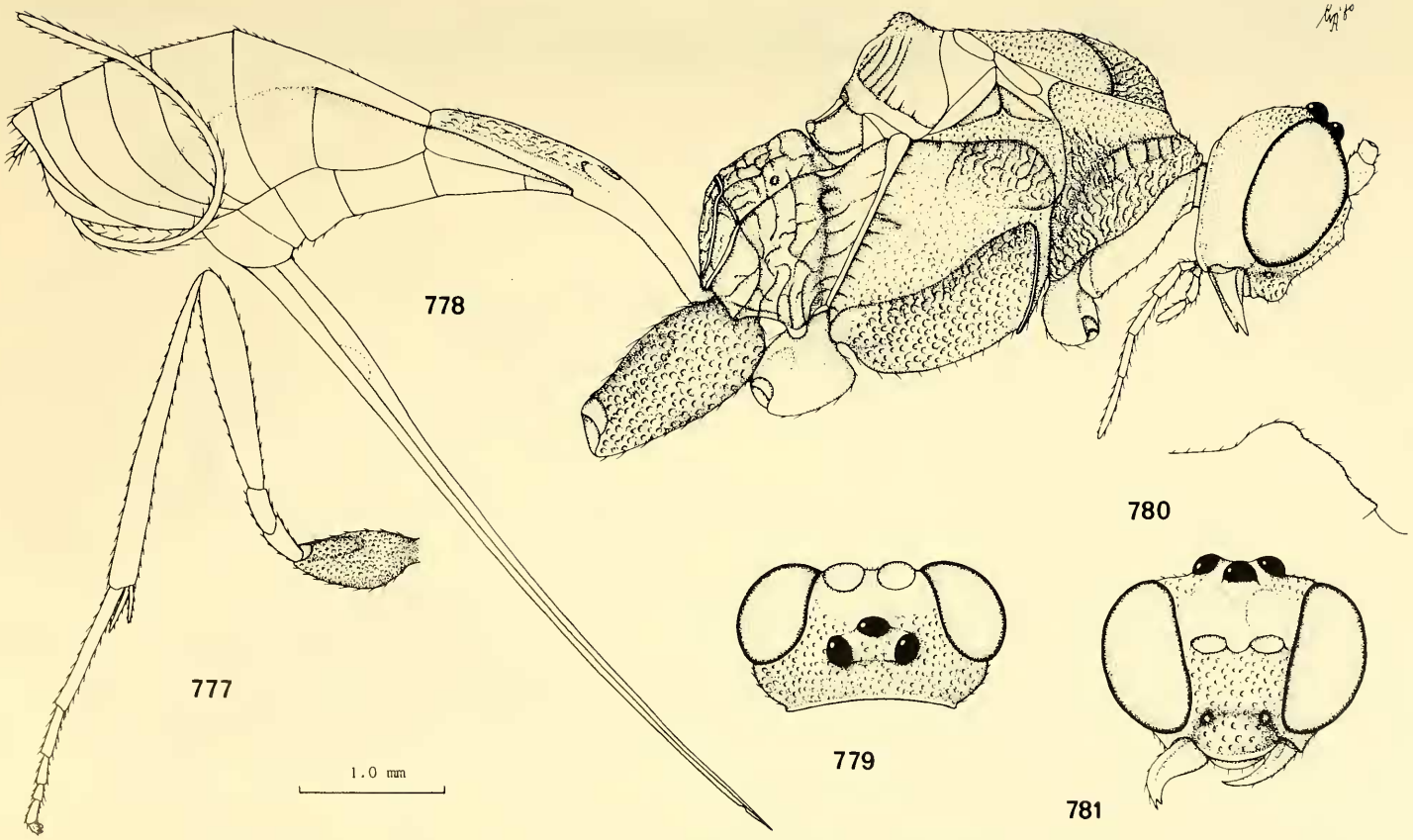
Figs. 748—755, *Zele annulicrus* (Thomson), lectotype. 748, habitus, lateral aspect; 749, head, dorsal aspect; 750, wings; 751, hind leg; 752, inner hind claw; 753, head, frontal aspect; 754, propodeum and 1st tergite; 755, mesonotum, dorsal aspect. 748, 750, 751: scale-line, 1 ×; 749, 753—755: 2.0 ×; 752: 5.0 ×



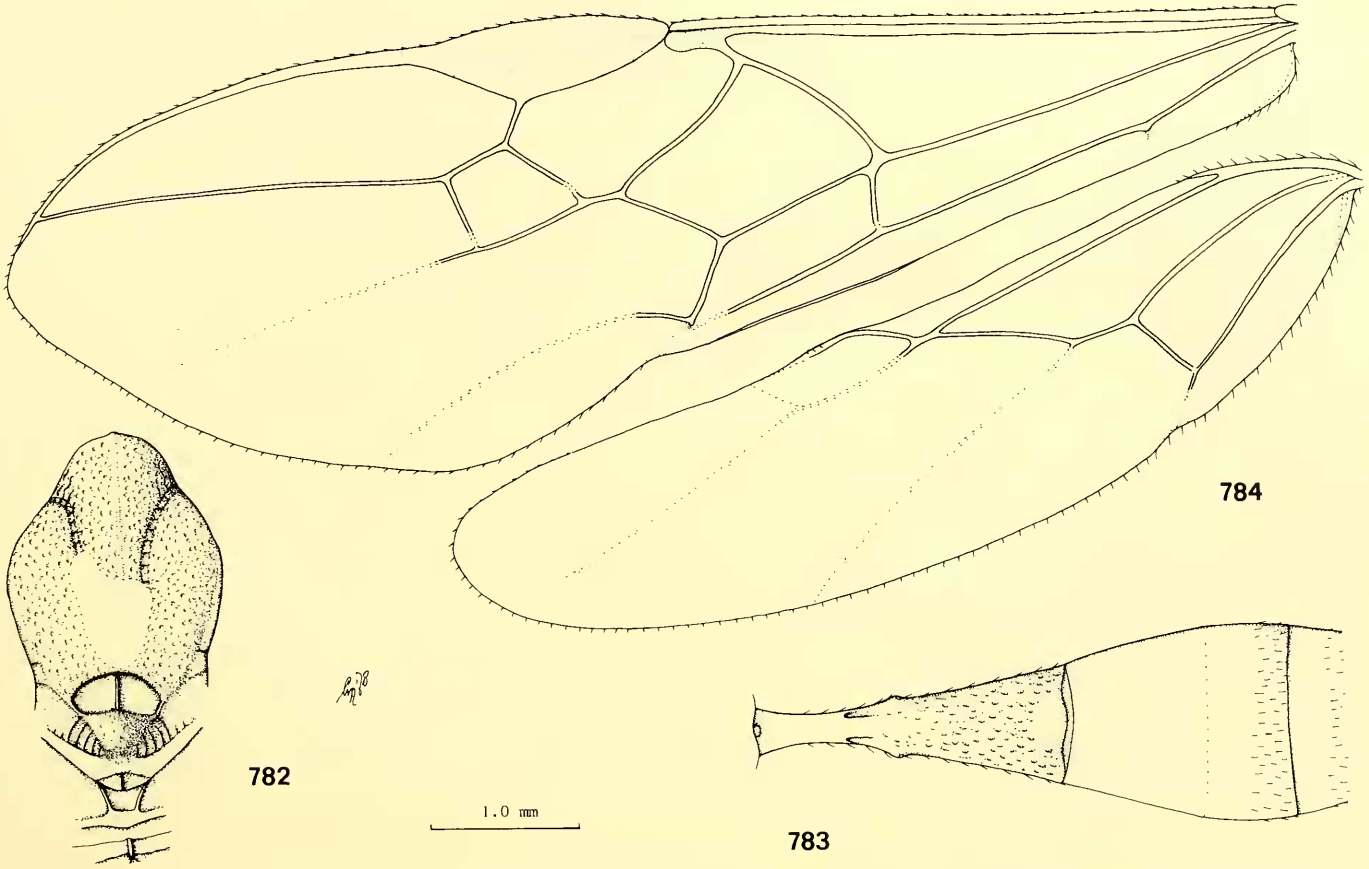
Figs. 756—765, *Zele neesii* (Ruthe), holotype. 756, habitus, lateral aspect; 757, outer hind claw; 758, wings; 759, palpi; 760, head, dorsal aspect; 761, hind leg; 762, propodeum and 1st tergite, dorsal aspect; 763, antenna; 764, mesonotum, dorsal aspect; 765, head, frontal aspect. 756, 758, 761, 763: scale-line, 1 ×; 757: 5.0 ×; 759, 760, 762, 764, 765: 2.0 ×



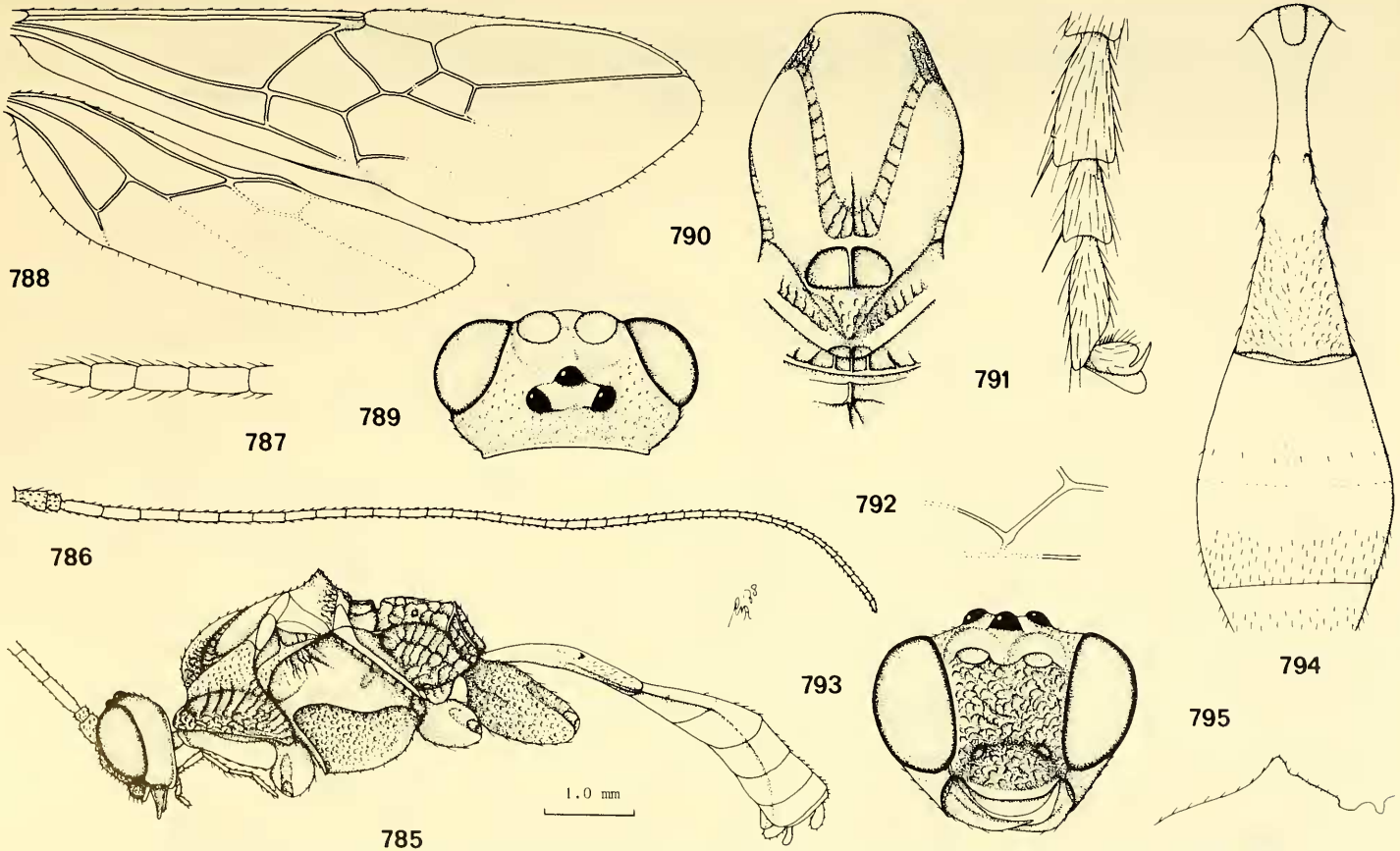
Figs. 766—776, *Zele levis* (Muesebeck), holotype. 766, habitus, lateral aspect; 767, apex of antenna; 768, wings; 769, antenna; 770, head, dorsal aspect; 771, mesonotum, dorsal aspect; 772, detail of anterior part of mesopleuron, lateral aspect; 773, head, frontal aspect; 774, hind leg; 775, propodeum, 1st and 2nd tergites, dorsal aspect; 776, inner hind claw. 766. 768, 769, 774: scale-line, 1 ×; 767. 776: 5.0 ×; 770—773, 775: 1.4 ×



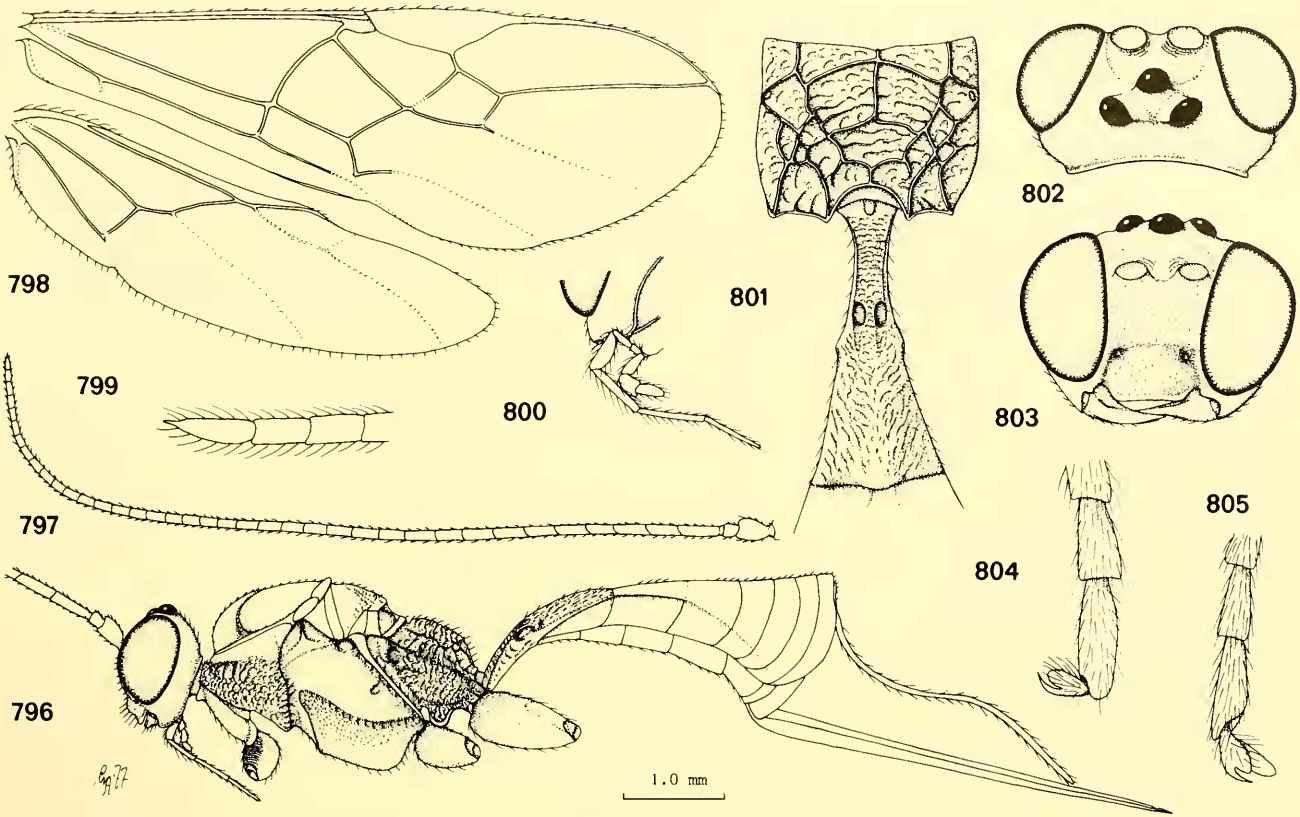
Figs. 777—781, *Zele punctatus* spec. nov., holotype, but 780 of allotype. 777, hind leg; 778, habitus, lateral aspect; 779, head, dorsal aspect; 780, detail of scutellum, lateral aspect; 781, head, frontal aspect. 777: 06 ×; 778: scale-line, 1 ×; 779, 781: 1.2 ×; 780: 2.0 ×



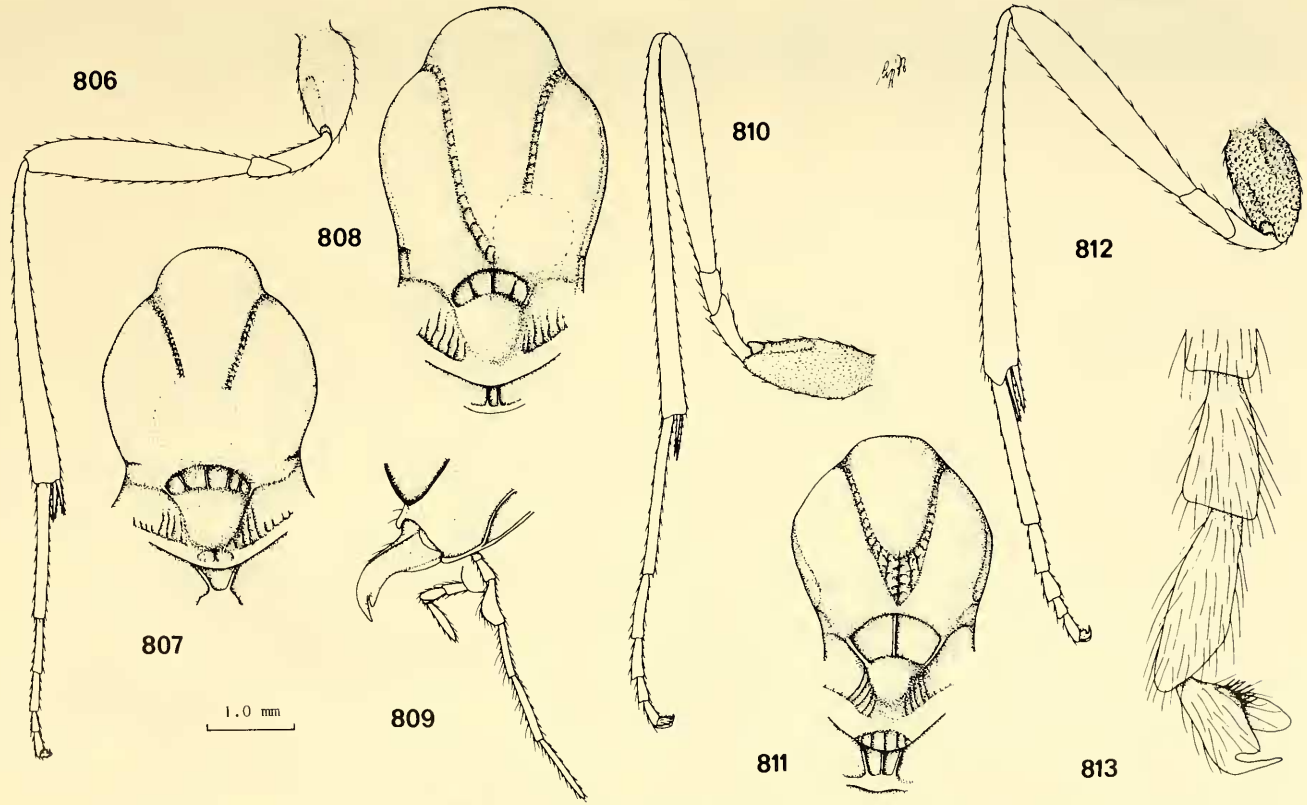
Figs. 782—784, *Zele punctatus* spec. nov. holotype. 782, mesonotum, dorsal aspect; 783, 1st—3rd tergites, dorsal aspect; 784, wings.
782, 783: 1.2 ×; 784: scale-line, 1 ×



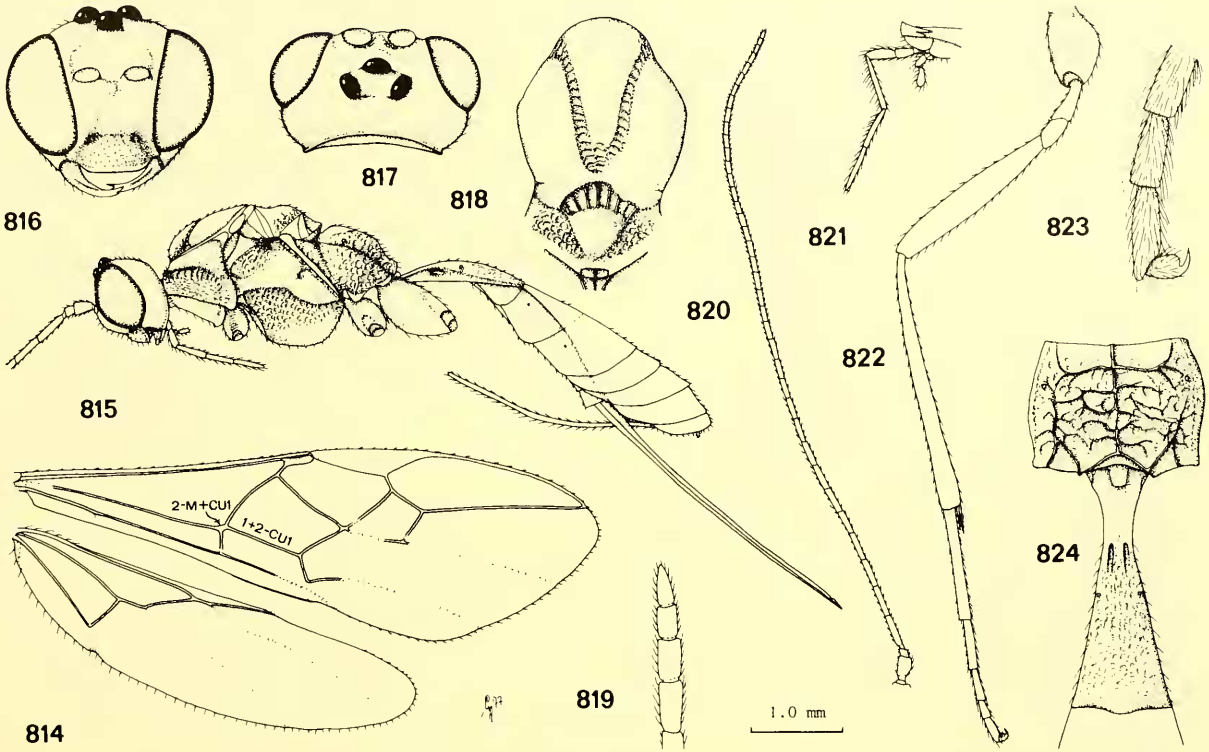
Figs. 785—795, *Zele tuberculifer* spec. nov., holotype. 785, habitus, lateral aspect; 786, antenna; 787, apex of antenna; 788, wings; 789, head, dorsal aspect; 790, mesonotum, dorsal aspect; 791, inner hind claw; 792, detail of vein CU1b of fore wing; 793, head, frontal aspect; 794, 1st—3rd tergites, dorsal aspect; 795, detail of scutellum, lateral aspect. 785, 786, 788: scale-line, 1 ×; 787, 791: 5.0 ×; 789, 790, 792—795: 2.0 ×



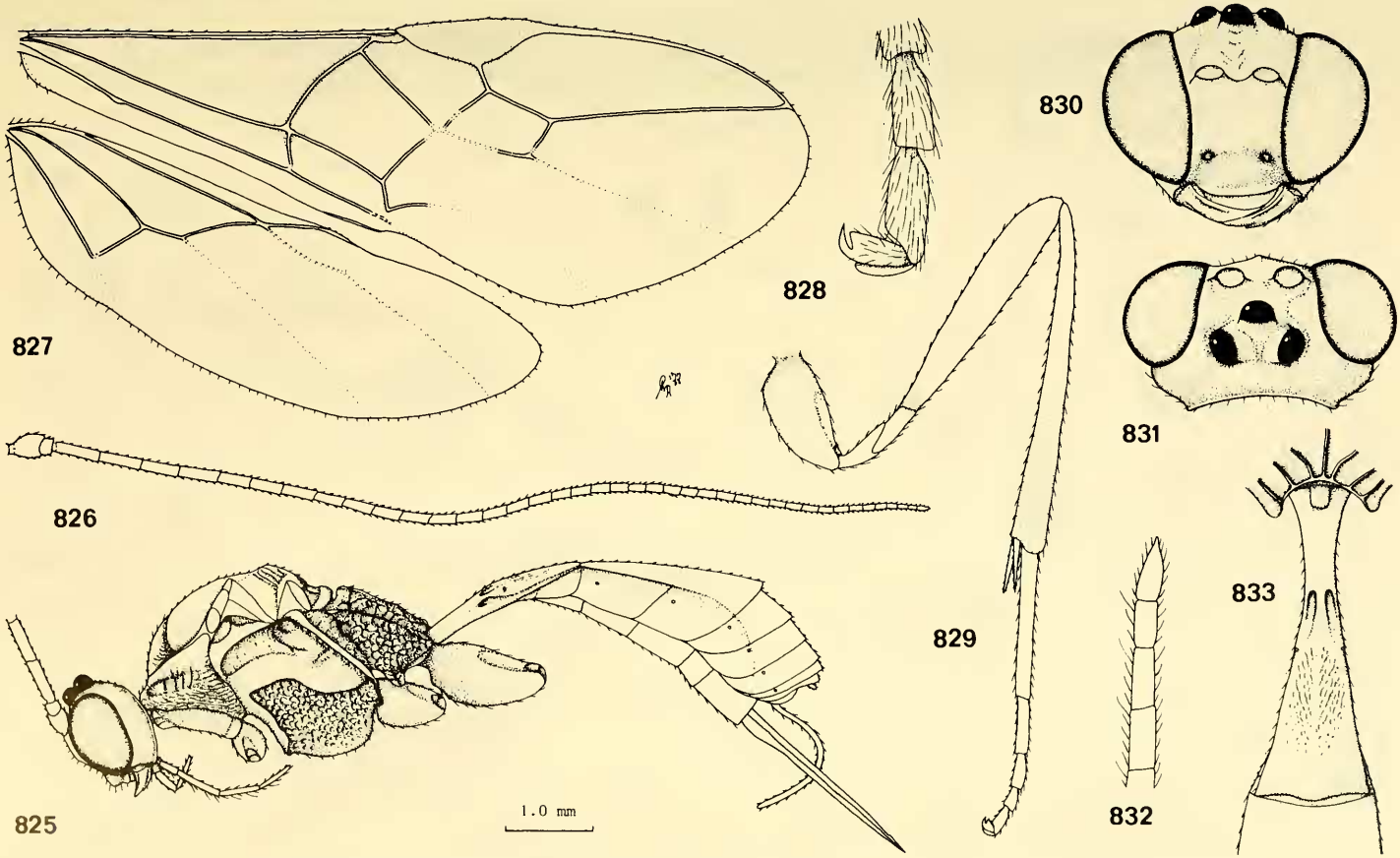
Figs. 796—805, *Zele niveitarsis* (Cresson), lectotype. 796, habitus, lateral aspect; 797, antenna; 798, wings; 799, apex of antenna; 800, palpi; 801, propodeum and 1st tergite, dorsal aspect; 802, head, dorsal aspect; 803, head, frontal aspect; 804, inner hind claw; 805, inner fore claw. 796—798: scale-line, 1 ×; 799, 804, 805: 5.0 ×; 800—803: 2.0 ×



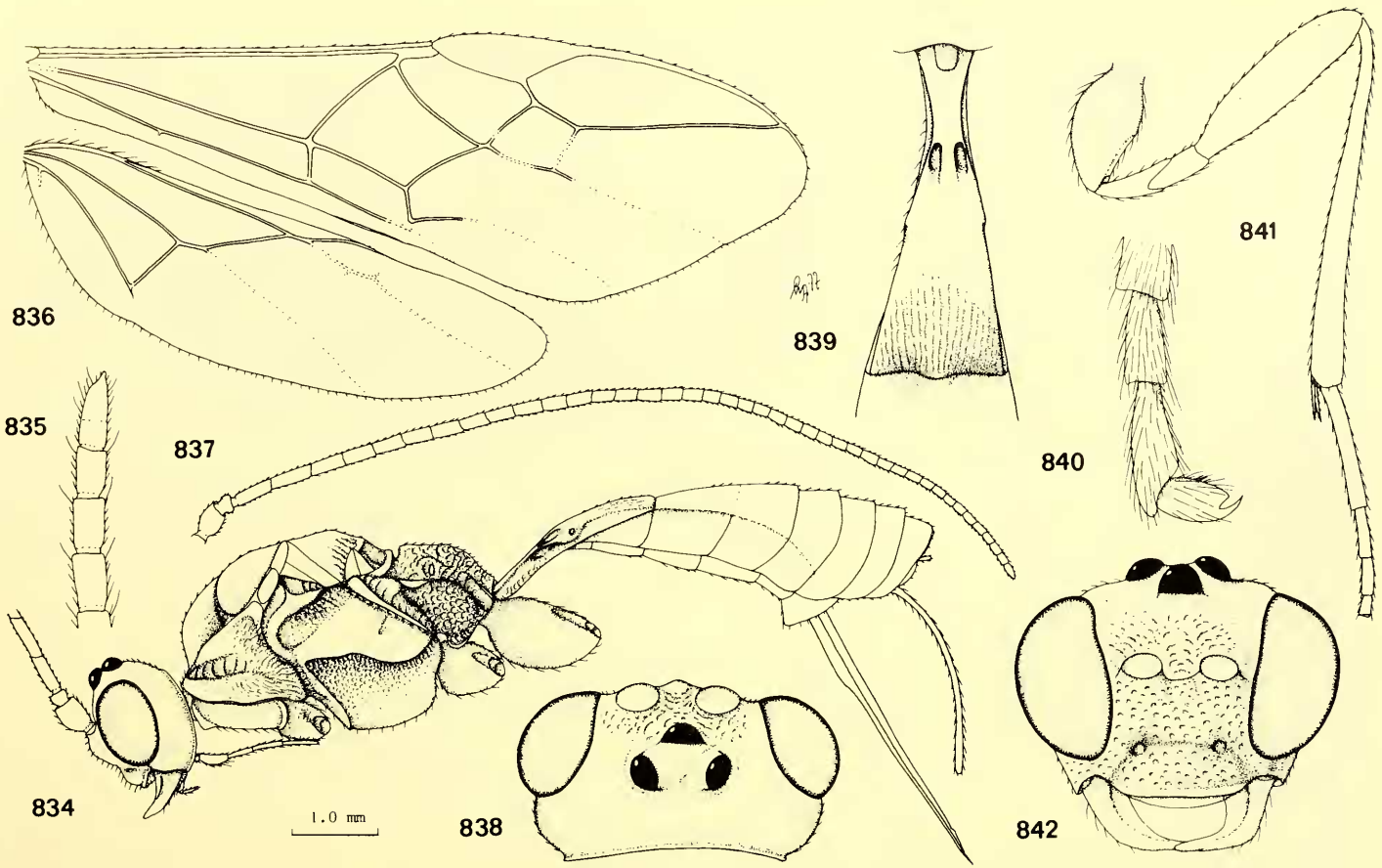
Figs. 806, 807, *Zele niveitarsis* (Cresson), lectotype. 806, hind leg; 807, mesonotum, dorsal aspect. Figs. 808, 809, *Zele crassifemur* (Muesebeck), holotype. 808, mesonotum, dorsal aspect; 809, palpi. Fig. 810, *Zele gracilis* spec. nov., holotype, hind leg. Fig. 811, *Zele picinervis* spec. nov., holotype, mesonotum, dorsal aspect. Fig. 812, *Zele tuberculifer* spec. nov., holotype, hind leg. Fig. 813, *Zele punctatus* spec. nov., holotype, inner hind claw. 806: 1.1 ×; 807—809, 811: 2.0 ×; 810, 812: scale-line, 1 ×; 813: 5.0 ×



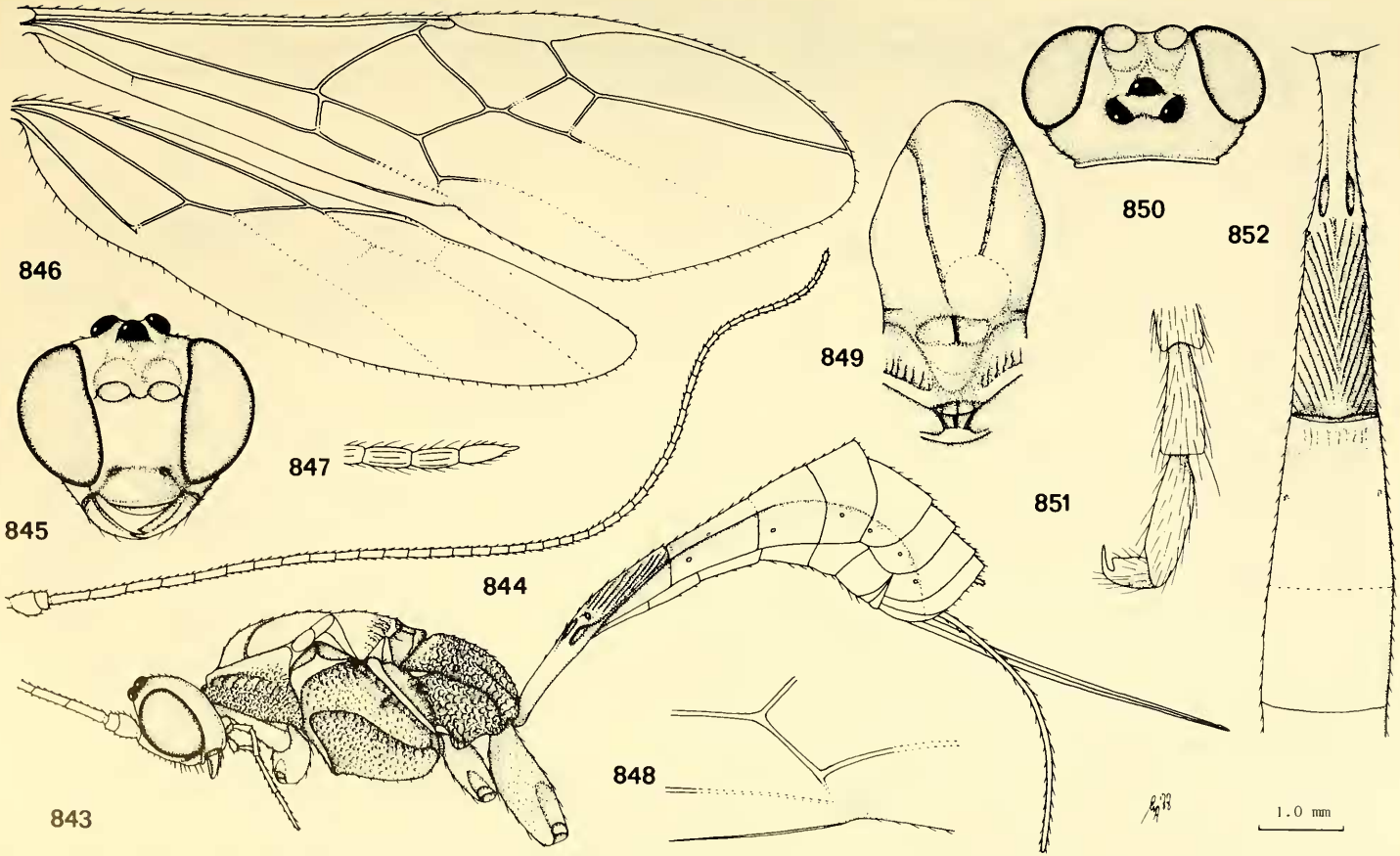
Figs. 814—824, *Zele chlorophthalmus* (Spinola), neotype. 814, wings; 815, habitus, lateral aspect; 816, head, frontal aspect; 817, head, dorsal aspect; 818, mesonotum, dorsal aspect; 819, apex of antenna; 820, antenna; 821, palpi; 822, hind leg; 823, inner hind claw; 824, propodeum and 1st tergite, dorsal aspect. 814, 815, 820, 822: scale-line, 1 ×; 816—818, 821, 824: 2.0 ×; 819, 823: 5.0 ×



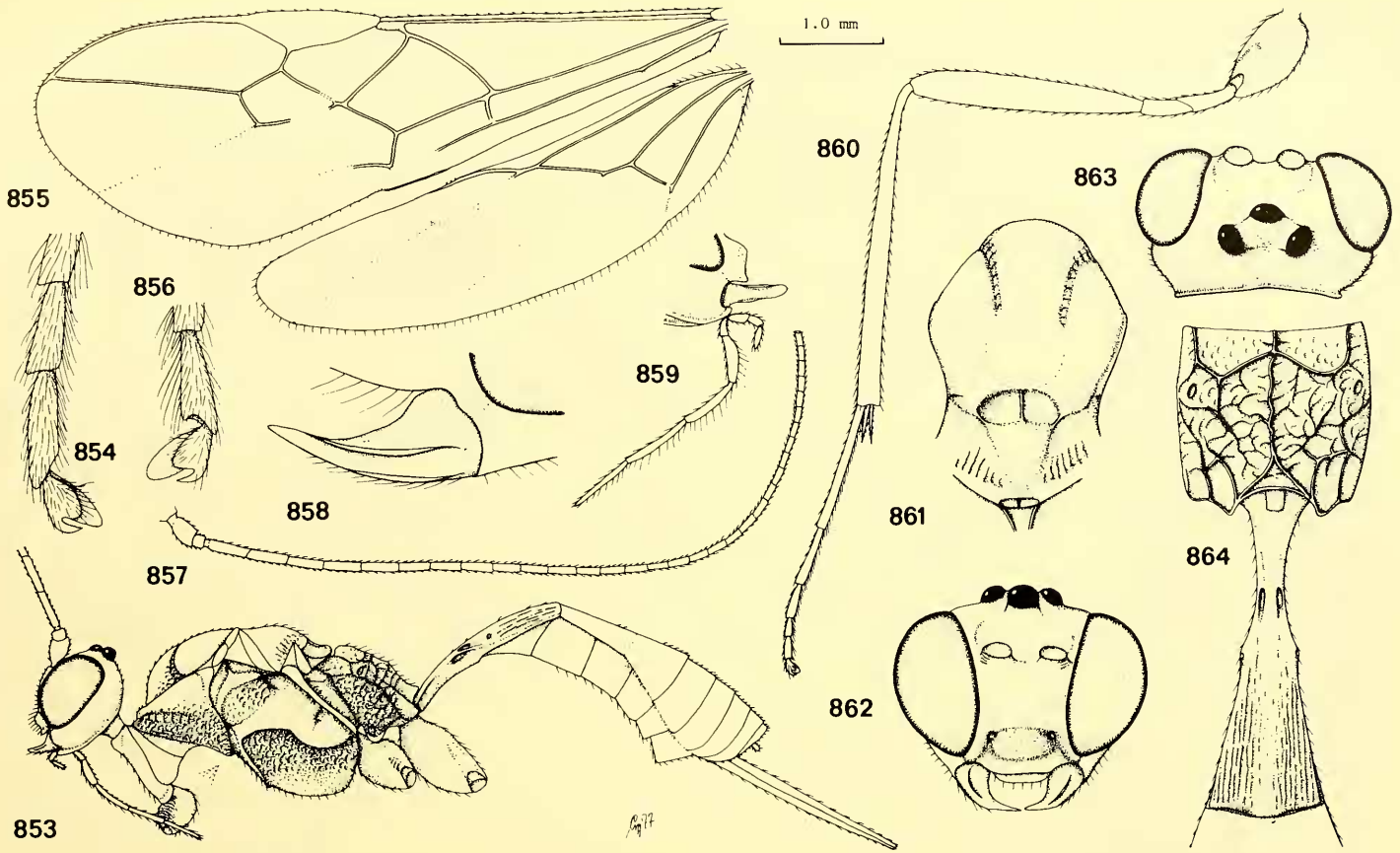
Figs. 825—833, *Zele picinervis* spec. nov., holotype. 825, habitus, lateral aspect; 826, antenna; 827, wings; 828, inner hind claw; 829, hind leg; 830, head, frontal aspect; 831, head, dorsal aspect; 832, apex of antenna; 833, 1st tergite, dorsal aspect. 825—827, 829: scale-line, 1 ×; 828, 832: 5.0 ×; 830, 831, 833: 2.0 ×



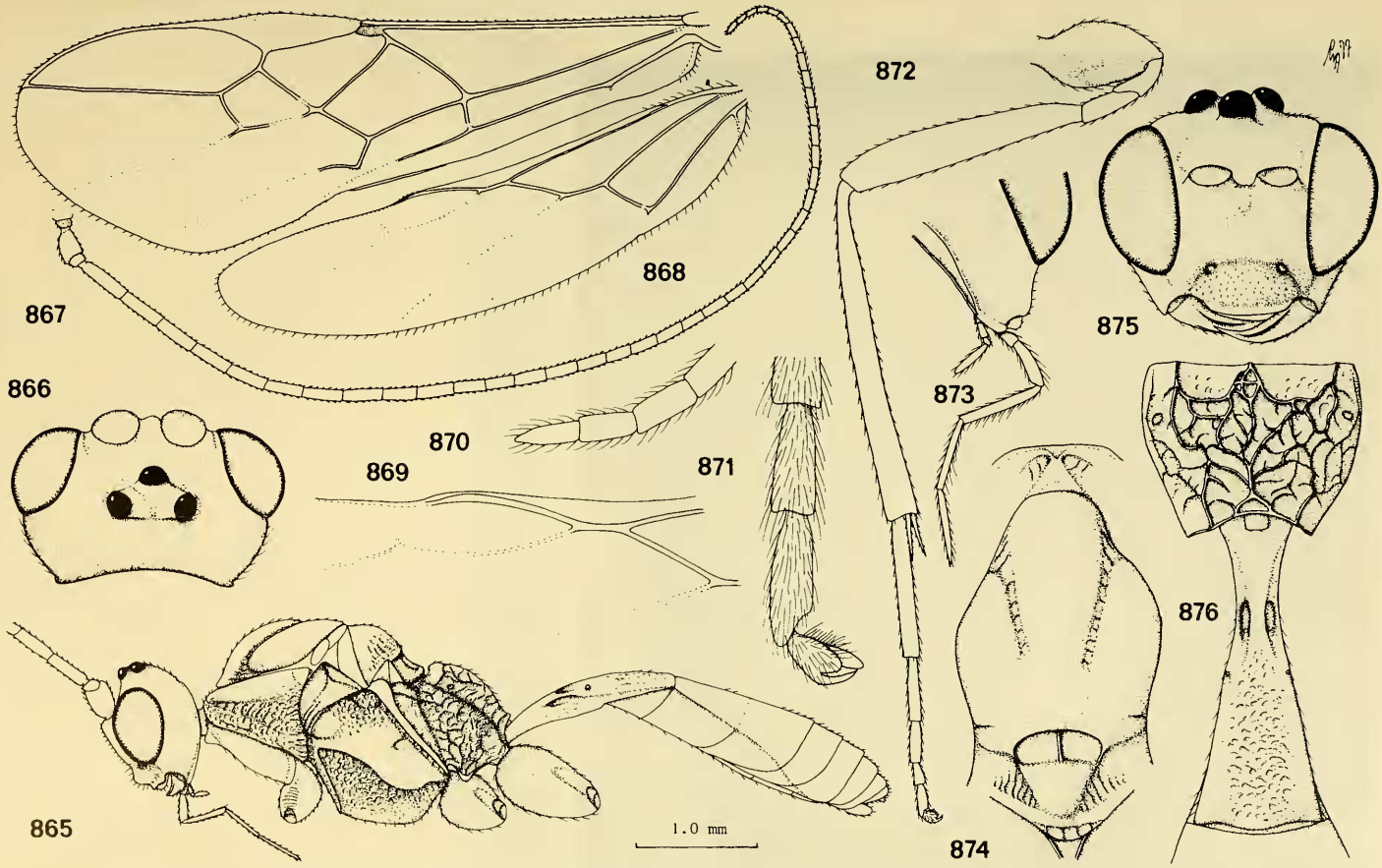
Figs. 834—842, *Zele crassifemur* (Muesebeck), holotype. 834, habitus, lateral aspect; 835, apex of antenna; 836, wings; 837, antenna; 838, head, dorsal aspect; 839, 1st tergite, dorsal aspect; 840, inner hind claw; 841, hind leg; 842, head, frontal aspect. 834, 836, 837, 841: scale-line, 1 ×; 835, 840: 5.0 ×; 838, 839, 842: 2.0 ×



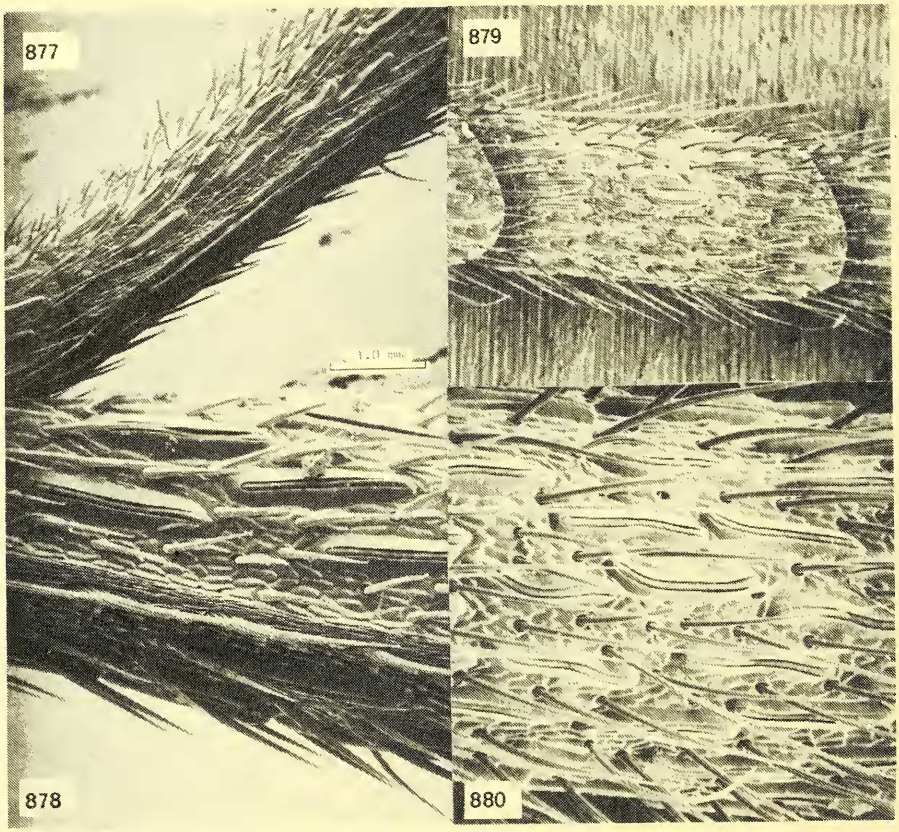
Figs. 843—852, *Zele gracilis* spec. nov., holotype. 843, habitus, lateral aspect; 844, antenna; 845, head, frontal aspect; 846, wings; 847, apex of antenna; 848, detail of vein CU1b of fore wing; 849, mesonotum, dorsal aspect; 850, head, dorsal aspect; 851, outer hind claw; 852, 1st—3rd tergites, dorsal aspect. 843, 844, 846: scale-line, 1 ×; 845, 849, 850, 852: 2.0 ×; 847, 851: 5.0 ×



Figs. 853—864, *Zele deceptor* (Wesmael), lectotype. 853, habitus, lateral aspect; 854, outer hind claw; 855, wings; 856, inner hind claw; 857, antenna; 858, detail of mandible, latero-ventral aspect; 859, palpi; 860, hind leg; 861, mesonotum, dorsal aspect; 862, head, frontal aspect; 863, head, dorsal aspect; 864, propodeum and 1st tergite, dorsal aspect. 853, 855, 857, 860: scale-line, 1 ×; 854, 856, 858: 5.0 ×; 859, 861—864: 2.0 ×



Figs. 865—876, *Zele pallitarsis* (Cresson), holotype. 865, habitus, lateral aspect; 866, head, dorsal aspect; 867, antenna; 868, wings; 869, detail of veins SC + R1 and SR of hind wing; 870, apex of antenna; 871, inner hind claw; 872, hind leg; 873, palpi; 874, mesonotum, dorsal aspect; 875, head, frontal aspect; 876, propodeum and 1st tergite, dorsal aspect. 865, 867, 868, 872: scale-line, 1 ×; 866, 869, 873—876: 2.0 ×; 870, 871: 5.0 ×



Figs. 877—880, inner aspect of 4th antennal segment. 877, 878, *Homolobus (Chartolobus) infumator* (Lyle), ♀, Netherlands, Nunspeet; 879, 880, *Homolobus (Apatia) truncator* (Say), ♀, U.S.A., Michigan, Ann Arbor. 877: 1.1 ×; 878, 880: 2.5 ×; 879: scale-line, 1 ×

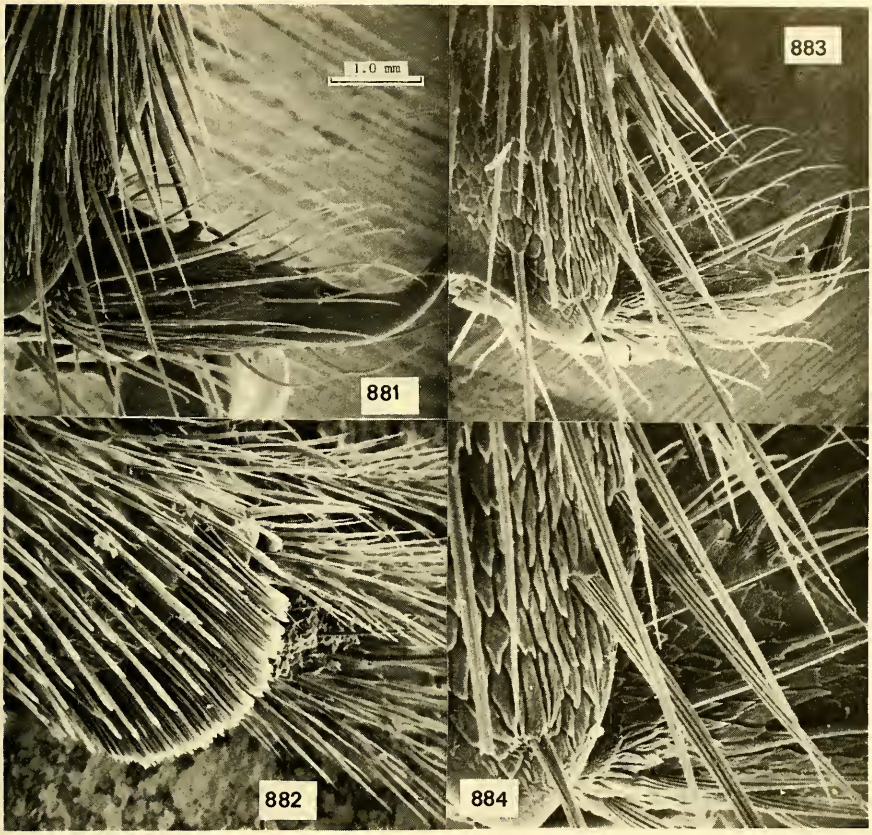
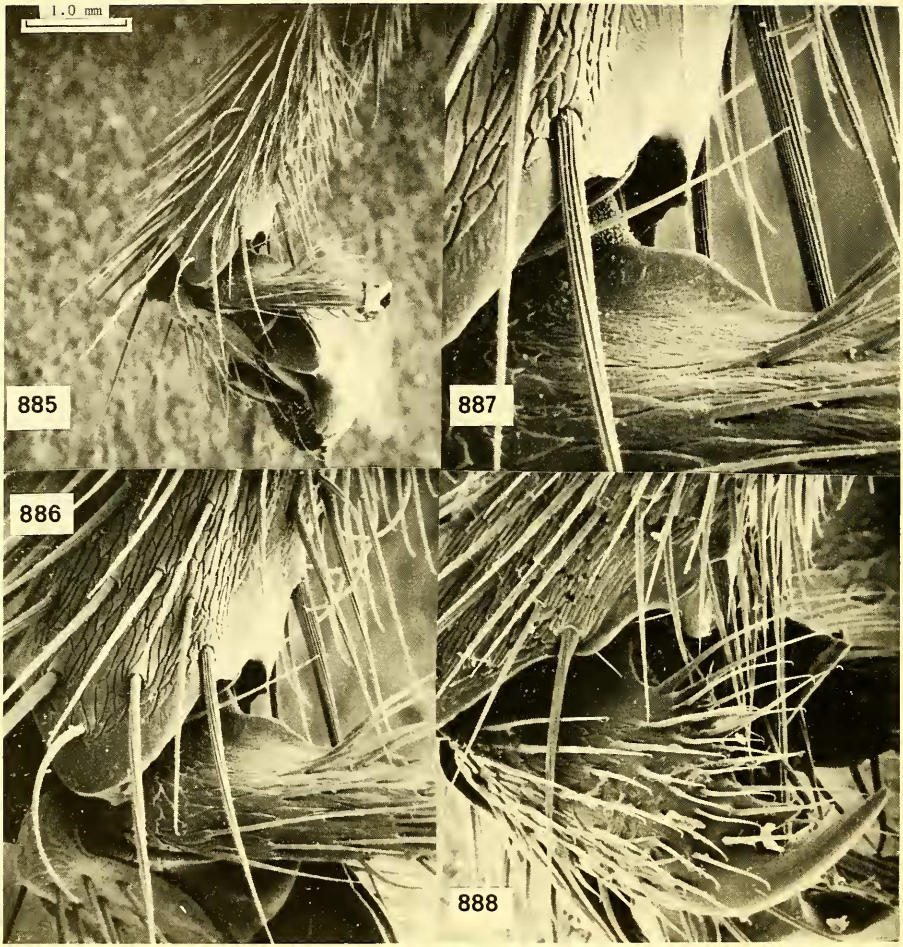
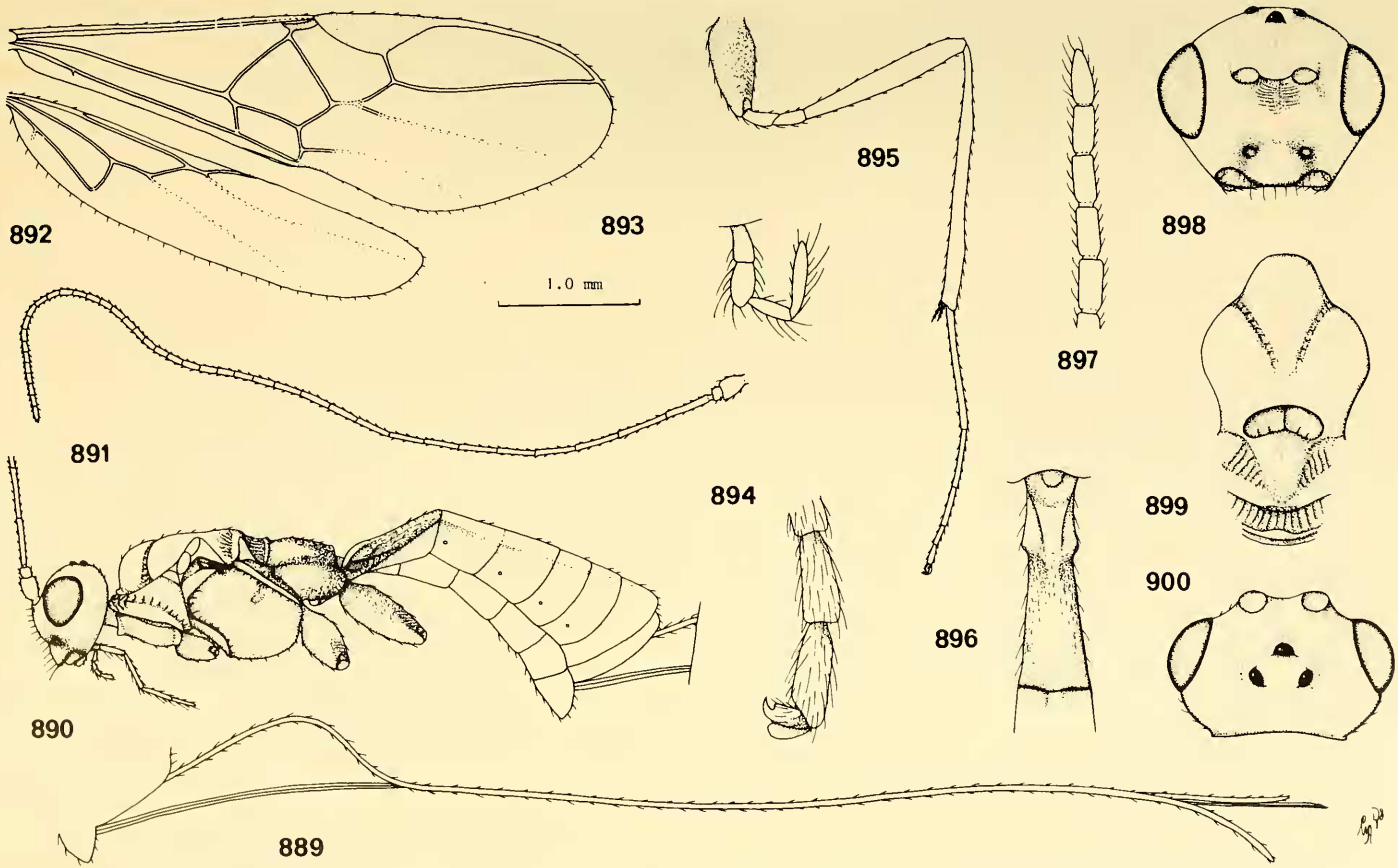


Fig. 881, *Homolobus (Apatia) truncator* (Say), ♀, U.S.A., Michigan, Ann Arbor, inner hind claw. Figs. 882—884, *Exasticolus fuscicornis* (Cameron), ♀, Brazil, Nova Teutonia. 882, inner aspect of apex of hind tibia; 883, 884: inner hind claw. 881: 2.1 ×; 882: scale-line, 1 ×; 883: 2.3 ×; 884: 4.6 ×



Figs. 885—888, inner hind claw of ♀. 885—887, *Homolobus (Homolobus) discolor* (Wesmael), Netherlands, Wijster. 888, *Homolobus (Chartolobus) infumator* (Lyle), Netherlands, Nunspeet. 885: scale-line, 1 ×; 886: 2.5 ×; 887: 5.0 ×; 888: 2.3 ×



Figs. 889—900, *Charmontia inopina* spec. nov., holotype. 889, ovipositor; 890, habitus, lateral aspect; 891, antenna; 892, wings; 893, labial palp; 894, outer hind claw; 895, hind leg; 896, 1st tergite, dorsal aspect; 897, apex of antenna; 898, head, frontal aspect; 899, mesonotum, dorsal aspect; 900, head, dorsal aspect. 889—892, 895: scale-line, 1 ×; 893, 894, 897: 5.0 ×; 896, 898—900: 2.0 ×